

CITY GOVERNMENT.

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CITY GOVERNMENT,

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WELCOME.

City officials and friends of City Government visiting New York are cordially invited to make the office of City Government their headquarters during their stay in the city. Desks, stenographers and stationery are placed at their disposal, and their mail may be addressed in our care.

WANTED—A few copies of *City Government* of November, 1896, for which 25 cents a copy will be allowed. City Government Publishing Co., Troy, N. Y.

ALWAYS FOUND ON FILE.

Some papers are glanced over hurriedly and then consigned to the waste basket. "City Government" is not in that class—its contents are worth the keeping. Here is a letter from Hart N. Cook, the efficient chief of the St. Paul fire department:

"City Government" can always be found on file in my office, and is referred to as a record of facts. I find something interesting and instructive in every issue, not only concerning the fire departments but all other departments of the municipal service. All city officials should read it and thereby promote the efficiency of their respective departments.

Thousands of city officials, like Chief Cook, read every number of this paper carefully and then file it away for future reference. That is why "City Government" is such a good advertising medium,

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COST OF "ALDERMANIC COURTESY."

The department of finance of the city of Rochester, N. Y., has been put in an embarrassing hole by what is commonly called "aldermanic courtesy." It has been the custom in the Rochester council to pass improvement ordinances and then, after the city has paid the contractors for the work, hold back the confirmation of the assessment rolls for several years. Whenever any alderman met with opposition in the practice he would promptly plead for "aldermanic courtesy," which, when rendered to plain English, means "if you allow me to do this for my ward I'll allow you to do likewise for your ward." In consequence of this unbusinesslike practice, improvements are carried on far in advance of their actual need, the property owners are loaded with assessment debts which seem easy to bear on account of the indefinite time for payment and the absence of direct interest charges, and the city at large pays interest on vast sums advanced by it to pay contractors while the assessment rolls await confirmation and collection.

The city treasurer recently attracted public attention to this sinister method by making the following announcement:

I have just accepted \$65,000 worth of contractors' orders, but there are still outstanding \$396,000 worth which I have not accepted because the debt limit is practically reached. In addition to these sums there will be \$180,000 worth of orders given out for November work. This will bring the total amount of orders outstanding up to \$576,000. We have no money to pay these with at present and we dare not issue bonds in excess of the legal limit.

It will be seen from the treasurer's statement that, aside from placing an unjust interest charge on the taxpayers at large, this "aldermanic courtesy" has endangered the credit of the city. The new council of Rochester will probably put a check on public improvements until the financial difficulty now encountered by the city is overcome, even if it has to forego the pleasures of "aldermanic courtesy."

DIVERTED LICENSE FEES.

Mayor Hayes, of Baltimore, has announced that he will endeavor to secure legislation which will enable the city to retain the license fees paid into its treasury. A very large portion of this revenue now goes into the state treasury, where it is used to meet expenses of rural counties where the tax levies are inadequate. As a matter of fact the people of Baltimore are being taxed to support local institutions in rural districts. This is the same system of taxation without representation that obtains in New York city under the provisions of the Raines law, and it ought to be stamped out wherever and whenever it exists.

In a carefully prepared article published in the Baltimore "American" some time ago it was shown that during a period of ten years the city turned over to the state, in round figures, about \$8,-

500,000 in license fees, from traders' and liquor licenses, and from court clerks, etc., a large part of which was paid out by the state to the several counties, to make up deficiencies in the way of salaries due by the counties to county clerks of courts, registers of wills, sheriffs, for support of public schools, etc. It was shown that very few of the counties were self-supporting, some of them paying into the state treasury less than \$3,000, and receiving back from the state, or actually, it may be said, from the city, through the state comptroller, as much as \$18,000 to \$20,000.

We can imagine the ravings of the people of any rural county in Maryland in case they should be called upon to pay any portion of the expense of any public institution of the city of Baltimore.

IMPORTANT DEVELOPMENTS IN SEWAGE DISPOSAL IN ENGLAND.

We devote considerable space in this issue to the report of the three experts appointed by the city of Manchester, England, upon the treatment of sewage for that municipality by bacterial beds. It is a report of great importance in that it recommends for a large city a method of treatment which has heretofore been tried only experimentally or upon limited scales. The sewage commission of the city of Baltimore, Maryland, last year retained the services of that eminent English engineer, James Mansergh, M. I. C. E., who while commenting most favorably on the new system now recommended for Manchester, only went as far as to say:

"It is a long step from the 120,000 gallons dealt with by the Dibbin system at Sutton, or from the 31,000 gallons dealt with by the septic tank at Exeter, to the 40,000,000 gallons at Baltimore, increasing in the future to a possible 120,000,000 gallons, and one could wish there were a few intermediate examples."

The practical use of this new system has, therefore, advanced a step when a commission of experts composed of Baldwin Latham, Percy F. Franklin and W. H. Perkins, Jr., are willing to recommend it for the city of Manchester.

We also make extracts from the report of C. Chambers Smith, surveyor of the Urban District Council of Sutton, England, reciting the results of his elaborate experiments upon the same method of treatment in bacterial beds.

Besides these reports we extract from an article in the "Surveyor," London, upon a report recently presented to the London County Council upon the same subject.

These three articles set forth quite in detail all that is to be said upon the question of bacterial sewage treatment and should prove a handy book of reference for commissions and engineers interested in the vexed question of the proper disposal of sewage.

TALKING AGAINST FRANCHISE GRABS.

Occasionally in this country we observe with pleasure the spectacle of a city councilman "talking out" against franchise grabs. Such a spectacle was recently furnished by Mr. Armand Albrecht, a clever member of the upper branch of the St. Paul city council, when a vote was about to be taken on a resolution giving to an existing electric company the use of additional streets for a power line. Mr. Albrecht undoubtedly knew, before he uttered a word, that the

franchise would be granted despite his protest. Still he courageously took the floor and opened fire like this:

In these latter days of the nineteenth century it seems inconceivable to me that the city council, and this city council in particular, should vote away such a valuable franchise—a franchise admittedly worth thousands of dollars to the company that is to secure it—without one cent of recompense to the city. It is such action that makes modern municipal administrations a by-word with the thoughtful.

None of the speaker's colleagues seemed to wince a bit under this statement. So Mr. Albrecht warmed up and presently said:

I hold that the council has not the right nor the power to grant a franchise of the nature proposed in the resolution under consideration. You are going into the pockets of the taxpayers without their permission.

A little thing like going into the pockets of the taxpayers seemed to interest no one but the speaker; his audience remained cold and indifferent. He continued:

It is claimed here, and has been speciously argued before several meetings of the committee on streets, that this resolution grants no new power. To that same committee was submitted an opinion from the corporation attorney that it was a new grant. After listening to the arguments before the committee the corporation attorney still held that it was a new grant, the giving of additional privileges. Even the attorneys for the company admit that there is a doubt as to the correctness of the position of the company. Admitting that there is a doubt to you, yet the council propose to resolve that doubt against the city. * * * A favorite hobgoblin is that some council in the past granted the franchise to this company—that this council is bound to respect the mistakes of the past because the city is committed. This is no excuse. It is deplorable that city councils in the past voted away valuable franchises without demanding payment to the city, but it is more deplorable that this council, with the light of the past full upon it, should repeat such an error—commit the same wrong. It has been argued that it is public policy to grant this franchise. This cry is a mere pretext, a hoary bugbear. Such an argument is made in favor of every application made to the city, and is a repetition of the argument that has been dinned into the ears of the members of the council many times within the past two years. * * * It has been argued that there is a moral and ethical obligation upon the part of the city to grant this franchise. The city under obligations to this corporation? From territorial days to the present time we have been paying an exorbitant price for lighting. In Detroit the municipal lighting plant is not operated in an economical manner, yet the cost, including interest and all other charges, is but \$70 a year for arc lights. Look what St. Paul pays for its lights; consider that the city pays \$1.30 for gas. Since 1891 the city has paid \$43,000 interest on gas posts. This is a mere gratuity. Yet the company has at all times refused to make concessions.

Then the vote was taken—7 to 2 in favor of granting the franchise.

PENAL ASPECTS OF DRUNKENNESS.

At Boston a committee "on the penal aspects of drunkenness" has been at work since January 11. The members of the committee are people engaged in works of charity and correction and, of course, well qualified to investigate and report on the existing methods of dealing with the punishment of drunkenness. Their report was recently submitted to Mayor Quincy, by whom it was transmitted to the city council. In his letter to the council, sent with the report, the mayor says:

It has longed seemed to me that the fine system of punishing drunkenness, as in operation at present, was entirely indefensible from any standpoint. Its financial results are comparatively insignificant, even upon the face of the figures, while in reality the amounts received from those who pay their fines are far more than counterbalanced by the cost of maintaining in confinement those who do not; while from the standpoint of meting out to all, without regard to social condition, the equal justice

which is assumed to prevail under democratic institutions, it is certainly a gross anomaly to let off, practically without punishment, those who are able to pay fines, while inflicting a heavy penalty upon those who are too poor to purchase exemption from imprisonment.

In contrast to the crude and old-fashioned method of dealing only with symptoms, the modern scientific spirit, which is at last in our day being applied to the problems connected with crime and pauperism, seeks to ascertain the causes of moral and social disease, and to diminish their influence, if it cannot altogether remove them.

To deal with every person arrested for intoxication in the same manner would be an absurdity. We have already made some progress in the classification of cases by law, and the exercise of discretionary powers by the judges does much to alleviate present conditions, but there can be no question that what is now most needed is the extension of individual investigation and of the probation system.

If the fine system is to continue as at present, the recommendation of the committee that time should be allowed to those arrested for drunkenness in which to pay their fines is certainly a wise and practical one.

The expenditure of all available money is the usual incident of such a case of intoxication as leads to an arrest, and the alternative of immediate payment of a fine, instead of imprisonment, offered to the unfortunate victim is, in a great majority of cases, a hollow mockery.

If the community desires pecuniary compensation for his offence, he should at least be placed upon probation long enough to show his disposition and ability to earn the amount of fine imposed; if incarceration is the only proper penalty for drunkenness, then the opportunity of escaping it through the payment of a fine should not be allowed to those who are peculiarly more fortunate than their fellows.

The report of the committee covers nearly fifty-five closely printed pages. It has been printed as a city document, and copies may be obtained from the City Messenger, Boston.

NATIONAL MUNICIPAL LEAGUE.

The fifth annual meeting of the National Municipal League was held in Columbus, Ohio, November 15-17. About fifty gentlemen—mostly non-city officials—from various parts of the country were present. The subject for discussion was the model municipal program or system of government, which has been under consideration for several years. A digest of the work appears elsewhere in this issue.

The fully developed program will be soon brought out in book form. It will afford some interesting suggestions for any city proposing to change its charter. The new municipal code to be submitted to the next Ohio Legislature, which unifies the code of that state, is largely based upon the model municipal program.

The officers of the National Municipal League for the ensuing year are:

President—James C. Carter, of New York.

First Vice President—Charles Richardson, Philadelphia.

Second Vice President—Samuel B. Capen, Boston.

Third Vice President—Thomas M. Strong, Portland, Ore.

Fourth Vice President—H. Dickson Burns, New Orleans.

Fifth Vice President—Edmund J. James, Chicago.

Secretary—Clinton Rogers Woodruff, Philadelphia.

Treasurer—George Burnham, Jr., Philadelphia.

Executive Committee—Charles J. Bonaparte, of Baltimore, chairman; Frank N. Hartwell, of Louisville; George W. Ochs, Chattanooga; Harry A. Garfield, Cleveland; Oliver McClintock, Pittsburgh; George W. Guthrie, Pittsburgh;

William G. Low, Brooklyn; Dudley Tibbits, Troy; Joseph A. Miller, Providence; John A. Butler, Milwaukee; Hector McIntosh, Philadelphia.

MAYOR PRICE PASSES AWAY.

Mayor S. B. Price, of Macon, Ga., a unique and most estimable character, died on November 23. The news of his death will be a shock to many city officials who enjoyed his companionship at the recent convention of the League of American Municipalities in Syracuse. Mayor Price attended the first convention of the League at Columbus, was again present at the Syracuse meeting, and on both occasions made many warm friendships, being a man of sunny disposition and altogether lovable traits. At the time of his death he was the honorary vice president of the League for the state of Georgia.

Mr. Price was mayor of Macon for fifteen years—that shows better than words what his home people thought of him. His last re-election was by a unanimous vote of the city, no one caring to question his right and title to an office in which he had served so long and so well. The mayor, as a politician, was unique in having the habit of saying, at all times and on all occasions, just what he thought. He believed in calling a spade a spade, and no one need ever have been in doubt as to his opinion on any public question or his estimate of any personality. His honest, frank, even blunt way of dealing with the people, his genius for always being on the right side of any controversy and his aptitude for accomplishing everything he set out to do won for him the sobriquet of "Daisy." He was known all over the South as "Daisy" Price, the invincible mayor of Macon.

EDITORIAL COMMENT.

A bill for \$80 for cigars furnished to the board of water commissioners has been held up by the city comptroller of Baltimore. As near as we can learn from the press reports, the comptroller's objection is not because the cigars are of the 25-cent each variety, but because the number of cigars consumed does not tally with the numerical strength of the board. There are only seven members and the comptroller is unable to figure out how a box of fifty cigars can be smoked by the board at each half-hour session. The comptroller seems to forget the newspaper reporters. There are at least fifteen of them about the Baltimore city hall, and being gentlemen of keen scent, they probably get around to the sessions of the water board with commendable regularity. It is entirely modest for a newspaper reporter to take not less than three cigars at a time, especially of the 25-cent kind; therefore, we can readily follow the smoke of 45 of those water board cigars. Probably two members of the board do not smoke.

The council of New Haven, Conn., has passed a resolution raising the pay of city laborers from \$1.50 to \$1.75 per day. The "Leader" objects to the raise because private parties can hire laborers at \$1.25 a day. The "Leader" ought to understand that because some persons consciencelessly deny the poor man a right to live decently by his toil is no reason why governments—municipal, state or national—should follow the niggardly practice.

Mayor Farley, of Cleveland, in commenting on the new Ohio municipal code bill, said no form of government could be better than the person or persons who administer it. "If you put a crooked man into office," said the mayor, "his administration will show it, no matter how many safeguards you throw out or what your plan of government is." This is what may be called hard common sense. If good municipal government is to be had you must put honest and capable men in office and keep them there.

Mr. J. T. Adams, representing a syndicate, has sent a communication to the Columbus, Ohio, council in which he proposes to form a corporation with a capital of \$3,000,000 to operate a street railway system there in case the council will grant him the necessary franchise for twenty-five years. He agrees to carry passengers for 3-cent fares, or, in case the rate is made 5 cents, to turn the additional 2 cents on each fare into the city treasury. He offers a bond of \$200,000 to guarantee the faithful performance of the proposed agreement. A significant part of the proposition is that Mr. Adams asks for rights only in streets where street railways are now in operation.

Popular Charles S. Ashley, one of the trustees of the League of American Municipalities, has just been elected mayor of New Bedford, Mass., for the eighth time. This last victory is the greatest ever achieved by Mayor Ashley, his opponent being left so far in the rear that his name is almost forgotten. The Ashley men elected the entire board of aldermen and in the lower branch, called the common council, there will be 21 Ashley men and only 3 of the opposition. New Bedford voters evidently appreciate Mayor Ashley's intelligent and progressive administration of city affairs.

That the eight-hour day for municipal employes is popular with the public was rather strongly demonstrated in the recent city elections in Massachusetts. In a number of cities a vote was taken on the question: Shall an act passed by the legislature in the year 1899, entitled "An act to make eight hours a day's work for city and town employes" be accepted? In every case the vote was in the affirmative by a large majority. Among the cities which accepted the eight-hour law are Brockton, Fall River, Gloucester, Haverhill, Lawrence, Marlboro, New Bedford, Northampton and Quincy.

Chief of Police Devery, of New York, suggests that the city purchase Madison Square Garden and convert it into a central police station. New York has the largest and best police force in the world and it ought to be provided with the largest and best headquarters in the world, but let Madison Square Garden alone. Would Chief Devery deprive New Yorkers of their French ball? Would he have the metropolis struggle through a presidential campaign without its big political demonstrations? Would he want

us to travel to Stamford or Yonkers to see a circus? Madison Square Garden is, forsooth, an invaluable institution to New Yorkers and they would never give it over to the police.

The city government of New York has been accused of being greedy. The accusation comes from Mr. Edward Lauterbach, counsel for street railway interests, and is based on the fact that the city has just demanded actual compensation for the use of public streets by private corporations. It appears that two companies, both represented by the same counsel, are seeking franchises in certain streets in the northern section of the city for railways, and the city board of estimate, acting under the law, has fixed by the companies as follows: 4 per cent. of the gross receipts for the first five years of operation, 6 per cent. for the second five years, 8 per cent. for the third five years, and 10 per cent. for the remainder of the 25-year term. Mr. Lauterbach insists that such greed on the part of the city is positively strangling to the corporations he represents. Perhaps the city government might find other parties, not so susceptible to strangulation, willing to take the franchise on the terms specified.

The commissioner of correction of New York is advertising for proposals for furnishing supplies to one of the city penal institutions and on the list we find:

300 pounds sea bass.
165,000 clams.
67,000 oysters.
400 pounds trout.
20 bushels cranberries.
75 bushels sweet potatoes.

The list complete fills more than a newspaper column in fine print, and besides the items mentioned above, includes all sorts of the best fresh and salt meats, fine jellies, fruits, etc. Upon reading the list one is almost tempted to break into the penitentiary where all these good things to eat may be had with the compliments of a generous and hospitable city. We suggest to the commissioner of correction that it might be well to advertise the bill of fare of this penal institution by placing cards—street railway fashion—in the side-door sleepers of all the railroads. Some gentlemen of leisure and travel who have no particular destination in view may in this way be induced to visit New York for the winter.

"THE BIG FOUR."

The four large cities of the middle West owe much of their present prosperity to the most excellent service afforded by the world-famed "Big Four Railway." With its geographical centre at Indianapolis it stretches itself out to the north, south, east and west, like so many helping hands. Through its beneficent influence populous centres, great and small, have sprung from the earth as by magic. The four cities will soon have multiplied one hundred fold. In equipment and management this system is all that could be desired. When you attend the Ohio state Municipal League Convention to be held at Dayton, O., January 15-17, inclusive, don't forget the superior conveniences offered by the world-famous "Big 4." Particulars as to time and rates can be had of the general passenger agent of the Big Four Railroad, Cincinnati, Ohio.

FIRE DEPARTMENTS.

ANNUAL REPORTS.

Fire Department Chiefs and Fire Commissioners will confer a great favor upon "City Government" by sending to the Editor copies of their annual reports as soon as same are ready for publicity. All reports will be carefully reviewed in these columns. Do not wait until reports are printed in book form.

Preparing for Fire Chief's Convention.

The board of directors of the International Association of Fire Engineers held an important meeting at the Astor House, New York, on November 27. President Quigley, Secretary Hill, former Chief Hendrick, of New Haven, Chief Blackburn, of Oswego, and Chief Kierstead, of Newark, were present. Representatives of "City Government" and "The Firemen's Herald" were also in attendance.

It was decided to issue the following letter:

The board of directors of the International Association of Fire Engineers take great pleasure in extending a cordial greeting and many wishes of prosperity to all county, state and national fire associations, also veteran organizations of volunteer firemen.

We earnestly desire that for the good and welfare of each, that arrangements for the annual meetings hereafter may be so made that the widest margin of time intervening between said annual meetings may be carefully considered for the interests of all concerned in the same good cause. Many members of the Fire Engineers' Association, when convenient, are desirous of attending the meetings of others. This can be consummated by having an understanding in advance of the stated time of the conventions, which can readily be ascertained in the columns of the several fire papers.

Thanking all state associations for their continued manifested interest by sending state delegates to the International Association, and trusting nothing will prevent a continuance, we remain,

Cordially and fraternally,

BOARD OF DIRECTORS.

JOHN P. QUIGLEY, President.

Resolutions were adopted, as follows:

Resolved, That the board of directors representing the International Association of Fire Engineers, earnestly urge upon the chief and committee of arrangements for the Charleston convention the following considerations:

First—That the hall for the business meetings and the place for all exhibits be so concentrated that the same may prove convenient and easy of approach to the hotels of the city.

Second—That no entertainment be arranged that will in any manner interfere with the business of the first three days of the convention week.

Resolved, That in order to promote additional interest, and increase the membership of the International Association of Fire Engineers, it is hereby earnestly desired to call immediate attention of each vice president representing this association by states, to particularly urge and use their best endeavors, either by correspondence or otherwise, in their several states, and invite such chiefs who are not already members to make immediate application to become such, and arrange to attend the meeting at Charleston, S. C., on the second Tuesday in October, 1900.

The following topics were selected for discussion at the next annual convention:

Topic No. 1—Grain elevator fires; have not recent developments in Milwaukee, Wis., practically illustrated that grain elevator

fires when equipped with the large automatic nozzles can be brought under subjection, when formerly such fires have been considered beyond the control of the ordinary fire department facilities?

Topic No. 2—Are the American manufacturers of fire apparatus keeping pace in the propelling power of all kinds of rolling stock used in fire departments in the United States?

Topic No. 3—Are the French more up to date and more alive to the needs in their recent developments of the automobile fire apparatus as a valuable substitute for horse power?

Topic No. 4—Rubber Tires on Fire Apparatus; has sufficient experience been derived by the use of rubber tires on fire apparatus to be considered a success?

Topic No. 5—State Fire Marshals; where state fire marshals have been inaugurated has their experience and work been successful? If so, what benefits have been derived by arrests, confessions and convictions, and the reduction of incendiarism? Is such an office required for the several states as a rule?

Topic No. 6—Drill Schools; should not all paid fire departments establish drill schools for the proper instruction of firemen that they may be better fitted in the discharge of their dangerous duties? What are the proper requisites for such an establishment, and what are its fruitful results where now established?

Topic No. 7—Fires in Cold Storage Warehouses; are ammonia tanks connected therewith dangerous in case of fire; if so, what is the proper course for the fire department to pursue?

Topic No. 8—Should the use of ground wires in connection with the fire alarm telegraph be discontinued?

Topic No. 9—Should not the hours of duty of firemen be reduced, and how can such reduction of hours best be accomplished?

The secretary was instructed to invite the following named gentlemen to prepare papers: Chief Swenie, of Chicago, and Chief Foley, of Milwaukee, on Topic No. 1; Captain Mitchell, of the Fire Extinguisher Manufacturing Co., Chicago, and A. W. Dolfini, of New York, on Topic No. 2; former Chief August Saltzman, of Plainfield, N. J., on Topic No. 3; Chief Swingley, of St. Louis, Chief Croker, of New York, Chief Baxter, of Philadelphia, and Chief Swenie, of Chicago, on Topic No. 4; Fire Marshal Whitcomb, of Massachusetts, and Fire Marshal Lawyer, of Maryland, on Topic No. 5; Battalion Chief A. W. McAdams, of the New York drill school, on Topic No. 6; Chief Sasse, of Wilmington, Del., and Chief Croker, of New York, on Topic No. 7; Morris W. Mead, of Pittsburg, and Chief Green, of Conklin, Mass., on Topic No. 8; G. H. Reinagel, of New York, on Topic No. 9.

It was decided to add the following questions to the convention program:

Are not our business men in the various cities many times imposed upon by traveling agents or solicitors who many times falsely represent the necessity for aiding relief funds of fire departments? And should not all fire and city authorities take measures for preventing further impositions of this character?

Should not preventative measures from fires receive greater attention from the insurance interests as well as the legislative assemblies of states, and also city authorities; in fact, should not prevention be considered paramount for the protection of both life and property?—Referred to the National Board of Fire Underwriters with a request that they designate some members to reply.

What amount of water can be secured from water mains of from four to six inches and a pressure ranging from sixty to eighty pounds?

Foreign Notes.—Notes, as seen in the fire service of foreign cities and a comparison with the American service.—Chief George C. Hale, Kansas City, Mo.

Politics and Religion.—Should not the fire service be free from the contamination of all so-called interference or patronage by either?—Referred to Chief McAfee, of Baltimore.

Review.—A review of the International Association of Fire Engineers; its results and success from the Baltimore convention of 1873 to the present time.—Referred to Chief Hopkins, of Somerville, Mass.

It was resolved that the secretary should issue a coupon with each receipt for dues to the association, such coupon to entitle the holder to a delegate's badge, and that no badge be issued to any one not presenting a coupon.

It was resolved that the secretary and the treasurer be requested to make up their annual report for the fiscal year, to October 1, 1900.

The board then went into executive session.

British Fire Tests.

The British fire prevention committee has submitted a report on recent experimental fire tests conducted by it, from which the following may be noted:

With reference to the floors experimented upon, one was constructed of solid wood beams, and the object of the test was to record the effect of a smouldering fire of twenty minutes' duration at a temperature not exceeding 500 deg. Fahr., followed by a fierce fire of one hour, gradually increasing to a temperature of 2,000 deg. Fahr., and then, suddenly, by the application of a stream of water for five minutes and the consequent rapid cooling. As a result the upper surface of the wood beams was charred to an average depth of 2 in., but beyond this no damage was done.

A second floor of steel joints, filled with concrete or corrugated iron, with a suspended ceiling, was subjected to a fierce fire for one hour and a quarter, gradually increasing in temperature to 2,000 deg. Fahr., and this was suddenly followed by the application, for three minutes, of a stream of water, and, consequently, a rapid cooling. The effect of this test may be summarized as follows: The suspended ceiling below the floor fell during the test, and also during its progress the floor deflected 2 3-4 in. in the centre, but subsequently returned to within 1 in. of the level. The concrete was slightly disintegrated on the underside, but the fire did not pass through the floor.

The remaining floor subjected to a test was constructed by the Columbian Fireproofing Company, of Pittsburg, New York and London. The object in this instance was to record the effect of a fire of two and a half hours' duration, commencing with a temperature of 500 deg. Fahr., gradually increasing during the first thirty minutes to 1,500 deg., then during the next hour to 2,200 deg., and afterwards increasing for an hour to a temperature not exceeding 2,500 deg. Fahr., followed at the end of the two and a half hours by the application of a stream of water for three minutes, and the consequent rapid cooling. The effect produced by this experiment was that the plaster on the inside of the ceiling and round the beams cracked slightly before the application of water, and when it was applied some of the plaster fell off

the soffit of the ceiling and beams. The concrete forming the floor was not damaged, but that enclosing the beams was slightly so, as well as cracked. The fire did not pass through the floor, and the wood fillets embedded in the upper surface of the concrete were uninjured.

The next experiment to be considered had reference to a lath and plaster partition and a brick-nogged partition. The object of this test was to record the effect of a fierce fire of one hour's duration, followed suddenly by the application of water for three minutes and the concurrent rapid cooling. The effects observed may be thus briefly described: The lath and plaster partition was practically destroyed. Fire broke through the plastering on wood lath in twenty-eight minutes at 1,600 deg. Fahr., and through that on wire lath in forty minutes, at about 1,750 deg. The brick-nogged partition resisted the passage of the fire for the hour, although the plastering was disintegrated and the studs charred, and the temperature eventually rose to 2,000 deg. Fahr.

A series of tests with doors were conducted on different occasions. In the first recorded, a solid-framed door 2-in. thick was subjected to a fierce fire of one hour, gradually increasing to a temperature of 2,000 deg. Fahr. After twenty-four minutes the flame showed between the bottom edge of the door and the sill. When forty-nine minutes expired the flame appeared between the edge of frame and the style of door above and below the lower bolt. After fifty-four minutes smoke issued through joints of panels and central rail, six minutes afterwards the flame burst through all joints, and the door collapsed five minutes later.

With a 1 3-8 in. and a 1 7-8 in. four-panelled pine door, the object of the test was to record the effect of a fierce fire of half an hour's duration, gradually increasing to 1,500 deg. Fahr. In this instance the fire broke through the 1 3-8 in. door in nineteen minutes, at a temperature of about 1,400 deg., and the door was destroyed in twenty-two minutes. It broke through the 1 7-8 in. door in twenty minutes, at a temperature of about 1,600 deg., and the door collapsed in twenty-six minutes.

The next doors experimented upon were a wooden one covered with tinned steel plates and an iron-framed and panelled door. The object was to try the effect on them of a fierce fire of one hour, gradually increasing to a temperature of 2,000 deg. Fahr., followed suddenly by the application for five minutes of a stream of water, and consequent rapid cooling. As a result of the test the wood door covered with tinned steel plates remained in position, but was much buckled and bulged, and the upper part gradually inclined inwards to a considerable extent, permitting the passage of flame, the first spurt of which was seen over the top of the door after five minutes. The iron-framed and panelled door remained in position, but became red hot, buckled and warped considerably, together with its rebated frame. The upper corner on the lock side gradually inclined inwards to a large extent, permitting the passage of flame, the first spurt of which between the door and the frame was perceived after twenty minutes.

Lastly, we have a 2-in. framed oak door, with 2-in. solid panels, and a 2-in. framed teak door with similar panels, subjected to a fierce fire of one hour's duration, gradually increasing to a temperature of 2,000 deg. Fahr. As regards the oak door, in thirty minutes flame ap-

peared between its top rail and the frame on one side, and, after forty minutes, it appeared between the upper panel and style on the opposite side. When forty-four minutes expired the flame came through the lock rail, in forty-five minutes' time the four panels fell outwards, and four minutes later the remainder of the door collapsed and also fell outwards. As to the teak door, in five minutes the flame appeared between the frame and top rail on side of slamming style, and gradually extended along the top edge and down top rails and panels. In fifty-five minutes the fire had extended to the bottom of the top panels, and the flame was coming through the joints between muntin and lower panels, and, after the lapse of fifty-eight minutes, the door collapsed and fell inwards.

New Orleans Fire Department.

The budget of appropriations for the New Orleans, La., fire department, as approved by the fire board, is as follows:

Engine companies 2, 5, 6, 7, 10, 13, 14, situated in the commercial district, seven companies, consisting of—	
One captain	\$900
One lieutenant	780
One engineer	900
One stoker	780
One driver	780
Five pipemen at \$720	3,600

Seven companies at	\$7,740	\$54,180
Truck companies 2 and 4—ten men each at \$7,740		15,480

Twenty-one engine companies, each company consisting of—	
One captain	\$900
One lieutenant	780
One engineer	900
One stoker	780
One driver	780
Three pipemen at \$720	2,160

Twenty-one companies at	\$6,300	132,300
Five truck companies, eight men, at \$6,300		31,500

Twelve chemical companies, consisting of—	
One captain	\$900
One lieutenant	780
One driver	780
One tankman	720

Twelve chemical companies at \$3,180	38,160
One water tower company at \$3,180	3,180
One chief engineer	3,000
Three assistant engineers	5,400
Two assistant engineers	2,400
Two senior captains	2,400
One secretary-treasurer	1,500
One department physician	1,200
One attorney	600
One veterinary surgeon	600
One master machinist	1,200
One clerk at headquarters	1,080
One storekeeper	720
One porter and messenger	720

Total salaries	\$295,620
Supplies	35,000

Grand total

Fire Extinguished by Liquid Gas.

Mr. George Spencer recently read a paper before the institution of mining engineers of London, in which he described the successful application of liquefied carbonic acid gas to extinguish a fire in a mine with which he is connected. The fire was caused by the roof falling on the steam pipes. The heading was quickly built up and every effort was made to exclude the air, but sufficient air reached the fire to keep it burning. It was then resolved to try carbon dioxide, and six cylinders of the liquefied gas were applied, by which means the fire was completely extinguished. Mr. Spencer does not claim that this method can be successfully applied to all gob fires; but undoubtedly there are many cases that can be so treated. This method should prove invaluable in fires on ship-board and in warehouses, where much

valuable merchandise is ordinarily destroyed by the water used to extinguish fires.

Automobile Fire Apparatus.

An automobile chemical and hose wagon has been invented by E. Steck, superintendent of the Fire Extinguisher Co., of Chicago, and will probably be put in trial service at Kansas City, Mo. The apparatus is propelled by an electric storage battery placed under the seat in the front part of the wagon. The current passes from the storage battery to a motor between the rear wheels. The principle of its operation is exactly the same as that of a storage battery trolley car, but it runs with much less noise, because it is much lighter in weight. The front wheels are protected by a fender. The man who guides the automobile sits on a seat in front, just as the driver of the fire horses does, and regulates the current of electricity by a switch crank. He turns the wagon by a large tiller wheel.

The electric fire wagon will run thirty miles at the rate of ten miles an hour, or sixty miles at the speed of five miles an hour. It will climb a 25 per cent. grade and the motors propel it with the strength of six horses.

Iowa Firemen's Association.

The Iowa State Firemen's Association held its annual meeting at Marion last month. A number of important changes were made in the constitution and by-laws of the organization. The report of the officers showed the association to be in flourishing condition. Officers for the ensuing year were elected as follows:

President, C. G. Warren, Harlan; vice presidents, E. I. Alderman, Marion; Geo. Neibert, Muscatine, and Geo. Holbrook, Onawa; treasurer, J. H. Johnston, Marshalltown; financial secretary, W. J. Francis, Sanborn; recording secretary, F. A. Wood, Cedar Rapids.

The next annual meeting will be held at Davenport, and the place for holding next session's tournament was left to the board of control.

Increased Salaries for Firemen.

All salaries in the Syracuse, N. Y., fire department are to be advanced, except that of the chief, which was raised several months ago. The salary of the first assistant chief will be raised from \$1,500 to \$1,800 a year, that of the second assistant from \$1,200 to \$1,500, that of the fire alarm superintendent from \$1,200 to \$1,500, and that of the clerk from \$1,200 to \$1,500. The salaries of captains, engineers and tillermen will be \$1,080 a year, being an advance of more than \$100 in each case. Hosemen, laddermen and other firemen will be raised from \$800 to \$900 a year.

Wants State Fire Marshal.

Captain W. S. Matthews, state insurance commissioner of Ohio, has been visiting Boston, where he has been consulting with the insurance commissioner of Massachusetts and the state fire marshal. It is his intention to introduce at the next session of the Ohio general assembly a bill providing for the appointment of a fire marshal in that state. It is the officer's duty to investigate the causes of fires and to warrant arrests for the crime of incendiarism.

Captain Matthews was informed that the destruction by fire in Massachu-

setts is believed to be reduced to the minimum by the employment of such an officer. The deputy fire marshal informed him that he knew of several cases where persons who made a practice of burning their own property in order to secure the insurance thereon had removed to Ohio when they discovered that they could not escape detection in Massachusetts. The commissioner believes that fully one-third of the fire loss in Ohio might be avoided by taking such a measure as that in force in Massachusetts, and that the appointment of a fire marshal would save the people of the state \$1,000,000 annually.

Pittsburg's Fire Department.

There are few fire departments in the country more liberally supported than that of Pittsburg, Pa. By a recent provision of the city council improvements will be made and equipment added to the amount of \$400,000 in value. Those who are familiar with the good judgment of Chief Humphreys can readily foresee that the money will be judiciously expended, and that when the work is completed, there will be no fire fighting force in the United States more fully equipped.

Among other additions contemplated will be five new engine companies—possibly six—and a fully equipped training school, similar to that now in operation in New York city. Everything which has been tried and proved in the way of improved apparatus will be added.

Pensioners for Watchmen.

Mayor Hayes, of Baltimore, has suggested to the board of fire commissioners that all the pensioned members of the fire and police departments, who are able, be required to act as janitors and watchmen about the city hall and the new court house, to be paid the regular wages of such positions less the amount of their pensions. The suggestion met with the approval of Commissioners Cathcart, Muller and Short, and the mayor will probably send a message to the council on the subject in the near future.

Greeting to Chief Swenie.

The directors of the International Association of Fire Engineers, when they met in New York recently, sent to Chief Swenie, of Chicago, the following letter:

New York, November 27, 1899.

D. J. Swenie, Esq., Chief Fire Marshal, Chicago, Ill. Dear Chief:

The board of directors in meeting assembled, having received the very agreeable information that one of the most esteemed members of the International Association is passing the period of a half century of his life as an active fireman, we desire at this time to give expression of our felicitations and congratulations at his arriving at so eventful a period in a useful life, with many fond hopes that such a valuable citizen and fire official of the city of Chicago may continue in a cause he so dearly loves.

We look with pride upon one faithful not only to Country, State, and city, but also faithful and foremost at all times in promoting the interests of this association. May a kind Providence continue for many years to preserve his health and happiness, that he may continue to receive the honors of his fellow citizens!

In this delightful season of Thanksgiving and praise, we, the representatives of the International Association of Fire Engineers, desire to extend once more our hearty congratulations, with our best wishes for your continued prosperity, and remain,

Sincerely yours,

John P. Quigley (president), A. C. Hendrick, Robert G. Blackburn, Robert Kiersted, Henry A. Hills (secretary), Board of Directors International Association of Fire Engineers.

Fire Department Notes.

—Chief R. W. Currier, of the Brewer, Me., fire department, has resigned.

—H. A. Lemke, chief of the fire department at Wausau, Wis., resigned last month.

—John H. Hollingsworth, fire commissioner of Niagara Falls, N. Y., has resigned.

—Henry R. Yates has been appointed chief of the paid fire department at Schenectady, N. Y., after passing the civil service examination with a percentage of 98½.

—Robert McKay has been discharged as chief of the fire department at Little Rock, Ark. The city council removed him. Captain John League, of Co. No. 4, has been appointed chief by the mayor.

—A fire department will be organized at Sodus, N. Y. Byron A. Hopkins, C. L. Gaylord, G. H. Tinklepaugh, D. G. Rogers and H. S. Williams are the citizens appointed to organize the department.

—John Costigan, who has been acting as driver for Chief Conway, of Jersey City, N. J., has been made captain of Engine Co. No. 3. Captain Costigan has an enviable record as a fireman, and richly deserved his promotion.

—Thomas J. Ahearn has been appointed deputy chief of the New York fire department, to succeed Deputy Chief Gicquel, deceased. Mr. Ahearn has been a member of the department for 26 years, and has worked his way up from the ranks.

—A paid fire department is to be established at Montgomery, Ala. The ordinance provides for the following positions: Chief of the department, \$1,200 a year; four captains, each, \$60 a month; two engineers, each, \$66.66; six drivers, each, \$50; one tillerman, \$50; each pipeman, \$40; each ladderman, \$40.

—The Iowa Firemen's Association, at its convention in Marion last month, elected the following officers: President, C. G. Warren, Harlan; first vice president, E. I. Alderman, Marion; second vice president, G. Neibert, Muscatine; third vice president, G. O. Holbrook, Onawa; treasurer, J. H. Johnston, Marshalltown; financial secretary, W. J. Francis, Sanborn; recording secretary, F. A. Wood, Cedar Rapids, Ia.

THE MAYOR OF EASTON.

Dr. B. Rush Field, the mayor of Easton, Pa., is a gentleman of rare social qualities and high literary attainments. His personal popularity is demonstrated by his two elections to the mayoralty as the candidate of the minority party in his city. Dr. Field was first elected mayor in 1893 and his administration at that time was so highly satisfactory to all local interests that he was sought after in 1899 as the best man to put at the head of the government of the en-



B. RUSH FIELD, Easton, Pa.

larged city—Greater Easton. As the democratic candidate last spring he had to overcome a normal republican majority of 800, which he did with ease.

Mayor Field is one of the best known Shakespearean scholars in this country, being the author of several able works on Shakespeare which have found large circulation and attentive study. He is a member and honorary librarian of the New York Shakespeare Society. He is also a member of many secret societies and social clubs, as well as being major of the 13th Pennsylvania Regiment.

HIGH SCHOOL STUDENTS POOR.

When the question was raised recently in St. Paul by the Chamber of Commerce whether it would not be wise to close the high schools to come within the limits of the school appropriation, the argument was used that the high schools were patronized by people that could well afford to pay for tuition. To disprove this, the school board asked for reports from the four high schools, and the answers show that the middle and laboring classes have the largest representation in these schools. In the Central High School, where it was expected that the "rich mens sons" would predominate, 190 mechanics, 237 clerks and salesmen, and 200 laborers and miscellaneous workmen are represented. In the Cleveland High School, mechanics and railroad men predominate, and the same condition is shown in the Humboldt School as far as the canvass has gone. The Mechanics Art School, which has been frequently attacked as an expensive luxury, has among the 335 pupils enrolled 157 whose parents are wage and salary earners. This is 46.9 per cent. of the entire number. The business men have a representation of 23 per cent. and the professional people 13.1 per cent. The remainder, 17 per cent., is given over to miscellaneous.

DAILY NEWSPAPER EDITORIAL COMMENT ON MUNICIPAL AFFAIRS.

New Municipal Regime in Baltimore.

(Baltimore Herald.)

Ever since his election, last May, Mayor Hayes has never shrunk from reaffirming his campaign pledge that he would give Baltimore a purely business administration. In the course of his inaugural address he emphasized this declaration in a formal and solemn manner. In alluding to his specific obligations in behalf of a non-partisan administration, he said, "I desire to say I have fixed and abiding purpose faithfully to carry out this sacred promise." "The people of Baltimore," he declared, "have elected me mayor of this city upon the distinct assurance that if elected I would exert my best efforts to give them a good municipal government." One of the most satisfactory announcements made by the new mayor was in behalf of police reorganization, concerning which he expressed the conviction that "this board and force should be taken out of the possible touch or influence of politics, either directly or indirectly."

Undoubtedly, the most significant passage in the address of our new mayor is that wherein Mr. Hayes asserted himself as follows:

I have repeatedly declared, both before my election and since, that my administration of the city government shall be on business principles; I but now repeat this statement. No municipal officer shall use his office for the advancement of politics. His service shall be given to the city, and not to politics. The purpose and aim of every municipal official appointed by me or the heads of departments and sub-departments shall be to advance the public welfare and not politics. I shall appoint both Democrats and Republicans and shall expect and require of them the very best service; a failure in this respect will be justifiable cause for their instant removal.

The citizens of Baltimore feel that they are entering upon a new and salutary era in municipal government, and to the firmness and patriotism of Mayor Hayes they confidently look for a fulfillment of their expectations.

Grade Crossings in Cities.

(Syracuse Telegram.)

The plan of abolishing deadly grade crossings in cities has been adopted in Chicago and Boston with great success, and the movement to abolish the grade crossings in the various large cities of the country is progressing rapidly and satisfactorily.

The progress made in a reform of this character in Chicago is of a character to denote that all difficulties in abolishing grade crossings are surmountable, or that where there is a will there is a way.

The fight against the grade crossing plans in Chicago was long and stubborn, but in the end the railway companies yielded and the work began. It has steadily progressed, and in time the deadly grade crossings in that city will be entirely done away with. The expense has been heavy to the railway companies, but they will profit largely in the long run.

The city of Cleveland is now agitat-

ing the question of abolishing the deadly grade crossings and will prosecute the needed work to a successful finish. The difficulties to be encountered in Cleveland are not so great as those met with in Chicago, and public sentiment demands that the grade crossings shall be removed.

The plan for the abolishing of the grade crossings in Boston provided for the distribution of the expense between the railroad companies, the city and the state, which is similar to the plan proposed for Syracuse.

Of all cities in the country Syracuse most needs the abolishing of the deadly grade crossings. The people demand that they shall be abolished, and it will be for the inestimable advantage of the city that they shall be done away with.

Chicago's Purifying Canal.

(New York Journal.)

The question of Chicago sewage is becoming a very vital one to the inhabitants of the fertile valleys along the Desplains river. For years Chicago has been working on a huge drainage canal running from the lake through the Chicago river into Desplains river, and thence by way of the Illinois into the Mississippi. In this project \$40,000,000 has been spent.

When completed every particle of sewage from a city of 2,000,000 inhabitants will go oozing through the narrow Desplains river and so into the Mississippi. It is no wonder, therefore, that the towns and villages in the Desplains Valley are worried.

The amount of sewage from a city the size of Chicago amounts to thousands of tons daily. The present project, while a very fine thing for the Windy City, seems likely to spread all sorts of infection and contagion among the small villages along its route. Even St. Louis, over 200 miles away, taking its water supply from the Mississippi river, regards the Chicago project with apprehension.

While indulging in a \$40,000,000 bath herself, Chicago is making matters very unpleasant for her neighbors.

Broadly speaking, however, the purification of the Chicago river is a matter of national interest. To the native Chicagoan it has proved harmless, but to the transient visitor it has been the principal sight and smell of the entire city.

Municipalism in England.

(Electrical Review.)

England is regarded as the home of municipal ownership ideas; it is pointed to by the agitator as the place where his dreams of civic control of public utilities are realized at their best; it contains the best examples of such public service institutions profitably conducted by town corporations. But the inevitable result of municipal administration is beginning to be felt in that country. A highly significant paragraph in our British correspondence this week points to the demoralization of municipal politics in some of the larger cities of Great Britain

that, directly or indirectly, has been brought about by making the opportunities for profitable venality so good. The quicker discernment and utter disrespect for conventional or traditional proprieties which distinguish the American politician from his British confrere, have for some time caused him to foresee the possibilities of "loot" which the municipal ownership situation contains, and he is beginning to argue for it with much propaganda of the socialist variety. Hitherto he has held up England and the admirable administration of its municipal institutions as an object lesson, and it has not been without effect, but today the object lesson is growing to be a "horrible example." With the labor agitator becoming prominent in British local politics, and the election of men of lower class to municipal offices will come the utter demoralization of the public service institutions they operate. Our correspondent tells us that high class electrical engineers prefer to avoid engagements with municipal bodies on account of the demoralization which is already evident among these. There is no use to produce any further argument against municipal ownership than this—that it has been tried faithfully by an intelligent public in Great Britain and has failed.

Platt's Constabulary Bill.

(Brooklyn Citizen.)

Despite the creditable opposition made by many of our republican contemporaries to the proposed state constabulary bill, it is evident that Mr. Platt has his mind set upon that outrageous measure and will not be prevented from passing it through his two houses of the legislature unless Governor Roosevelt says that he will not sign it. In this attitude of the Boss we have a significant intimation of the value he attaches to the weight of the republican party press. Mr. Platt plainly has become so confident of his ability to hold his own by the favor of the rural community, that he is quite indifferent to the judgment of even the republicans of our larger cities. Having hit upon the admirable expedient of bribing the farmers by throwing a large part of their taxes upon the shoulders of the cities, he counts confidently upon still further gains from the thinly-settled counties if he succeeds in obtaining for them the official patronage of New York.

Of course Mr. Platt would not venture upon any such course were he apprehensive of having to face the solid antagonism of our city republicans at the polls. What he assumes is that most of the republicans in question will content themselves with protests that will lose their vitality before next election day, and that when the time comes round for another trial of strength at the polls they will fall in line under the influence of party feeling. If Mr. Platt is not in error in this assumption, it would seem to be in order for our republican neighbors and for the newspapers to which we have alluded, to speak out in much more explicit language than they have thus far employed.

PAVING AND SEWERS.

ANNUAL REPORTS.

City Engineers and Public Works Commissioners will confer a great favor upon "City Government" by sending to the Editor copies of their annual reports as soon as same are ready for publicity. All reports will be carefully reviewed in these columns. Do not wait until reports are printed in book form.

Columbus Sewer Improvements.

Mayor S. J. Swartz, of Columbus, O., in a recent interview, calls public attention to the necessity of completing the sewerage system of that city so as to provide adequately for present and future needs. He points out the necessity for a sewage disposal plant. The mayor says:

The office of the river in purifying the sewage of the city is plainly gone. Mr. Alvord, the celebrated expert, who examined the condition of affairs here during Mr. Black's administration, says that during the summer months the river is capable of taking care of the wastes of a population of only 4,430 persons, and that any additional relief the completion of the storage dam on its proposed lines might afford would only be to a population of 3,000 or more persons. The condition of the river for the past few summers fully demonstrates that it is wholly incapable of purging the sewage of a population now pouring its wastes into that stream, estimated at 120,000 people. The wastes of about 20,000 more are poured into Alum creek. It must be apparent to anyone from the conditions known to all that something must be done in the interests of the whole city. A proper sewage disposal means not only pleasanter homes and increased value in property, but a very much lessened death rate.

Plans and estimates are now being made for the completion of the Columbus sewerage system, and bonds will probably be issued soon to cover the expense of the work.

To Avoid Patched Pavements.

Frank J. Symmes, of the Merchants' Association, objects to the continual tearing up and patching of the street pavements at San Francisco, and suggests a plan by which it can be avoided. His idea is to place all electric wires and water and gas pipes under the sidewalks. He says:

"The city owns the streets from property line to property line on either side. Property-holders have in many cases appropriated the space under the sidewalks. The property-holders surely recognize the importance of using the space under the sidewalks for the pipes and wires which are now under the center of the street, and would doubtless relinquish this space without a murmur on a proper realization of the necessities. Certainly they would do so if they could be brought to realize the importance and necessity for it. Let such portions of that space under the sidewalks as may be necessary be taken possession of by the city and set aside for the conduits of all the pipes and wires. One-half or two-thirds of the width of the sidewalk would still remain for the use of the property-holder and provide ample room for his sidewalk

hoists as at present. Ample convenience for the location of all the necessary pipes and wires in the street could thus be had, and provide abundance of room for the mechanics for the necessary alterations and repairs. This space being provided on two sides of the street would provide gas, water and electric wire accommodation, so that there need be no excavation for crossing the streets. In any case, doubtless the gas and water companies in due time would find it as convenient and economical to provide two lines of pipe of a smaller size in the street as one line of the larger size now required."

Hearing on Sewer Ventilation.

Rudolph Hering, the New York sanitary engineer, in a recent interview in the Los Angeles, Cal., "Herald," says:

"The main thing with the sewers is to keep up a good ventilation. People living near manholes may say that they are troubled with odors arising from the sewers, but that simply shows that the sewers are not in good condition. People give their parlors, which are the cleanest places in their houses, a thorough cleaning occasionally, and if the parlors need cleaning, certainly sewers, which are the dirtiest of places, have equal need of it. One cannot say just how often your sewers should be cleaned, but certainly as often as once a month. I should say that you were using plenty of clean water for ordinary uses, but flushing does not require clean water. The sewers should have flush traps, or doors in the sewers, which would back up the sewage until it gets under some pressure, and then allow it to escape suddenly. Under such a system, which is common in Europe, the sewers could be kept clean enough to prevent the escape of offensive odors. There may be exceptional cases where it is desirable to seal the manholes, but as a general rule all the circulation of air possible should be provided for the sewers.

"This is especially true here, where you have the peculiar experience with your outfall sewer. I have not seen that, but from all accounts it would seem to be certain that the gases are responsible for the disintegration of the cement. You can figure that out as well as I can. The cement under the water is solid, while that exposed to the air is crumbling. Now, if you shut off the circulation of air, you are simply increasing the evil that exists."

Special Assessments.

[Paper by George T. Bouton, of Jersey City, N. J., read before the convention of the American Society of Municipal Improvements.]

We will doubtless agree that, as an abstract proposition, all assessments for public improvements should in law and equity be based on the benefits accruing to real estate by reason of the making of a certain improvement, the cost of which improvement should be prorated on the several properties benefited, and to the extent of such benefit; but as public improvements (and I refer to paving and

sewer work) cost the same, whether the properties benefited are worth \$100 or \$1,000 per city lot, the more valuable property would probably be benefited to the full extent of a pro-rata of the entire cost, while to so assess the less valuable property would oftentimes resolve itself into a practical confiscation.

The law which governs our city precludes the making of an assessment beyond the actual benefit derived, and thus at times the city is compelled to assume a share of cost, because the making of the improvement petitioned for appeals to the governing body as of sufficient general benefit to warrant the expenditure; but experience has taught us that the greatest care should be observed in the exercise of this prerogative, as increasing demands for partial exemption are strengthened with each concession.

I have heard individuals argue for the favorable consideration of a petition for an improvement, the benefits of which would be largely local, and the making of which would result in the city's assuming quite 50 per cent. of the cost, the petitioners admitting that the improvement was not worth its cost, but contending that the balm of increased valuation which time might produce would eventually offset the outlay. I have heard individuals strenuously insist on the making of certain improvements for the reason that their communities would be largely benefited, and after such improvements had been completed and the assessments levied therefor, I have listened to equally strenuous arguments from the same gentlemen in an effort to convince the authorities that the benefits derived were largely general, and that the city at large should assume the whole or greater part of the cost.

Cases have come to my knowledge where petitions comprehended improvements in localities not only very sparsely settled, but where the property was of such little monetary value as to be practically worthless, where the pro rata of the cost of improvement would be about fourfold in excess of the value of the property, and where any accruing benefit to the city would be so greatly remote and prospective that even a superficial examination of the case would warrant a conclusion that the interested property owners desired to gamble at the city's expense and with the city's resources. If the improvement produced exceptional results their gamble would be successful; contrariwise, their stake was a bagatelle.

It is safe to conclude that occasionally all municipal governments have somewhat similar experience, but incidents such as these should not have a deterring effect in the exercising of a fairly liberal public policy toward property owners. Every improvement contemplated not only benefits the private owner, but adds just so much to the betterment of the city as a city, and the question resolves itself into this: Under what circumstances and to what extent should the city extend financial aid?

While it is obvious that no inflexible rule can be established by the officers of a city government in establishing a maxim percentage of cost to be borne

by the city at large, it is likewise obvious that in the removal of eyesores, in the correction of evils which for a long time have asserted themselves, and in the doing of a work which is part of and necessary to a whole, and which would be impossible of accomplishment without municipal aid, a greater ratio of liberality should be extended.

Up to the year 1895 the improvement laws of the city of Jersey City were cumbersome and the expense incident to the making of an improvement was considerable of a factor in the total cost, the natural result being that comparatively few improvements were petitioned for. With the securing of new and more liberal laws an appreciable reduction in the expenses theretofore incident, and the pursuance of a more liberal policy toward property owners, more has been accomplished in our city during the past five years than is the sum total of the showing for the twenty years preceding, while the percentage of payment for assessments levied has kept pace with our expectations. Not 1 per cent. of the property owners assessed has complained of unequal or excessive assessment, and as the result of the policy established the city has been vastly improved and beautified, her ratables appreciably increased and her ability to hold her own with the advanced and advancing cities of America rendered indisputable.

A liberal policy, however, cannot be successfully maintained without the exercise of great care, exceeding watchfulness and sound judgment. Officials must be deaf to every claim for partial exemption where the city does not receive an offsetting compensation; blind to every insistent for special favor in which there is nothing of benefit for the municipality; resistant to every demand for something of questionable utility, else that which would otherwise prove a blessing to a community must result in the discontent of the taxpayers, in a corresponding lack of general interest, in loss of local pride, and in the building of a monument of debt, to reduce which processes of law must be largely resorted to.

The Sutton Experiments of Bacterial Treatment of Sewage.

The sewage disposal of the district of Sutton had up to 1896 been effected by the aid of chemical precipitation and broad irrigation, but with such unsatisfactory results that experiments were made in that year by Mr. W. J. Dibden on a new method of disposal, viz., a fine grained bacteria bed, the results of which have been so uniformly satisfactory and have received such attention and notoriety that in the year 1898, alone, there were not less than 305 deputations or representatives to inspect the system from all parts of the world. The experiments have proved conclusively that sewage disposal can be effected without the formation of sludge, with an absence of nuisance, and at a minimum of expense and labor and a maximum of efficiency.

The first coarse grained bacteria bed or filter for the treatment of crude sewage was constructed as follows: One of the chemical precipitation tanks, which held 60,000 gallons, was filled with burnt clay ballast to a depth of three feet, six inches, the bottom of the filter being provided with a six-inch main drain, over the outlet of which is a screw-down valve for closing when the filter is under work, and branching from the main drain are three-inch tributary drains six feet apart, forking off to the sides of the

filter. The crude sewage, after passing through a roughing screen to intercept floating paper, is run directly upon the filter without the addition of any chemicals. The filter is charged to within six inches of the surface and the sewage remains in contact for a period of two hours, after which the outlet valve is opened and the filtrate is drawn off to be further purified on fine grained bacteria beds, after which the effluent is in a fit condition to be discharged into the brook and is uniformly superior to the effluent obtained by broad irrigation.

The coarse grained filters are charged three times a day, an interval of rest of not less than two hours being given each filter after being emptied. This mode of treatment of sewage reduces the matters in suspension from 67.2 grains per gallon to 0.0 grains; the oxygen absorbed from 3.517 grains per gallon to 0.578 grains; and the albuminoid ammonia from .380 to .0059 grains; while nitrification has taken place to the extent of 2.151 grains of nitrogen per gallon. The sludge is absorbed by bacterial agency in the beds and does not accumulate or manifest itself. The first bed used has continued at work with short intervals of rest almost daily without a renewal of the filtering material. The beds are, moreover, free from any offensive odors.

The experiments made prove that the coarse grained filters, worked on the contact principle, may be constructed of a numerous class of materials and that different cities may adopt materials which are obtained locally and often at a small cost, although it may be observed that a porous coarse grained material, such as coke and burnt ballast, effect a greater degree of purification than fine grained impervious material such as granite, slate, etc.

All the experiments with bacteria beds show that the object for which they are intended, viz., to abolish sludge, has been realized, and that sewage can be purified without chemicals at a small cost, being little more than that incurred by the labor in attending to and supervising the filling and discharging of the filters, and that sewage purification may be carried on with little or no nuisance. The report shows that while the original cost of purification when chemical precipitation was employed was about \$70.00 per million gallons, the cost of operating bacterial beds and purification thereby has been reduced to \$16.00 per million gallons.

The Sewage Disposal Problem at Manchester.

The city of Manchester, England, has recently issued the report prepared by the three experts, Mr. Baldwin Latham, Professor Percy F. Franklin and Mr. W. F. Perkins, Jr., upon the question of proper disposal of the sewage of Manchester, which is now turned into the Manchester ship canal in a comparatively unpurified condition, chemical precipitation now being used. The report is a valuable one, as will be seen from the conclusions and recommendations which follow, our space not permitting the publication of the report in full.

The conclusions as to what is best of the various systems of sewage treatment investigated by the experts, are as follows:

(1.) That the bacterial system is a system best adapted for the purification of the sewage of Manchester.

(2.) That any doubts which may have arisen in the first instance as to its suitability, owing to the presence in Manchester sewage of much manufacturing refuse, have, through the convincing results of our experimental inquiry, been entirely banished. The results obtained have al-

together exceeded our expectations as to the possibility of purifying a manufacturing sewage, inasmuch as it was previously a matter of common belief that in such a liquid only a most insignificant amount of nitrification could be induced.

(3.) That inasmuch as a bacterial contact bed can only effect a definite amount of purification in a single contact, it becomes necessary in order to carry the purification beyond this limit to apply the effluent to a second bed, in which again a further definite amount of purification can be effected. Hence, for obtaining a high degree of efficiency in the bacterial purification of sewage, a system of multiple contact is generally necessary. Thus it may be taken broadly that in the first contact, 50 per cent. of the dissolved impurity is removed, and that in the second contact 50 per cent. of the impurity still remaining in the effluent is disposed of, and so on.

(4.) In order that a bacterial contact bed may exercise its full power of purification, it is necessary, (a) that it should be allowed sufficiently frequent and prolonged periods of rest; (b) that the sewage applied to it should, as far as possible, be free from suspended matters; (c) that the sewage applied to it should be of as uniform a character as possible.

(5.) The above conditions are secured by passing the sewage as it arrives at the works through an adequate system of screens, catch-pits and tanks.

(6.) The capacity of the bacterial contact beds has been found to remain practically constant after they have been in operation for a period of three months.

(7.) With regard to the amount of sewage which can be purified with a given bed without the latter being overtaxed, our prolonged experimental inquiry has shown that each bed may safely receive four fillings in the twenty-four hours, provided the sewage has undergone the preliminary subsidence and septic preparation in tanks and that the bed is accorded about one day's rest in every week. In the event of a bed having been unduly taxed, its efficiency is only temporarily impaired and can be restored by a few days' repose.

(8.) We have shown that storm water may also be satisfactorily dealt with by means of an accelerated bacterial treatment, which can be brought into operation as soon as the sewage is sufficiently dilute. As, however, until about two hours after the commencement of heavy rain there is no abatement in the concentration of the sewage, it will be generally necessary for the storage or separate treatment of the first flow.

(9.) Our experiments show that the bacterial system of treatment is efficacious at all seasons of the year, the temperature of the sewage being sufficient both to prevent any stoppage of the beds by the formation of ice and also to maintain the necessary activity of the bacteria even in the coldest weather.

Based on these conclusions, it is of interest to know the recommendations made by the experts, which are as follows:

(1.) That the sewage as it arrives at the works be submitted to an efficient process of screening, and that it then pass through the present open tanks built for chemical treatment. These tanks should be provided with submerged walls and floating scumboards, so as to retard the flow of the mineral and organic matters in suspension. In the event of the present screening machinery proving insufficient to remove the heavier mineral matters in suspension, it would be desirable that four roughing tanks should be added to the present tank arrangements, or that four of the existing tanks should be converted into such roughing tanks and then four additional tanks should be provided to take their place.

(2.) That the effluent from the open tanks be passed through the double contact beds. Of these double contact beds we estimate that there should be an area amounting in round numbers to sixty acres, exclusive of retaining walls, roads, etc. This estimate is based on a dry weather flow of 36,000,000 United States gallons, and that each acre being laid out in beds of 3.33 feet depth, with four fillings per twenty-four hours, would be capable of dealing with 600,000 United States gallons of sewage in round numbers, allowing for one day per week rest.

(3.) With regard to the material most suitable for bacteria beds we should recommend that it consist of clinkers of such size as to pass a one and one-half inch mesh and to be rejected by a one-eighth inch mesh. Efficient means must be provided for rapidly filling and discharging the beds. The beds should be so constructed as to allow of each being used independently.

(4.) During the occurrence of a storm the flow of sewage should (Manchester having what is known as the combined system of sewage in which the rain water mixes with

the house sewage and is disposed of together, being inseparable), be dealt with in a system of tanks and double contact beds. The excess of flow, after passing through the roughing tanks, should be taken to specially prepared bacteria beds of an area which we provisionally estimate will have to be at least twenty-five acres in extent. As a safeguard against excessive quantities of water passing down at any time, the present sewage tanks may have an increased depth of water put upon them. At present the tanks have a capacity of 15,000,000 United States gallons, and this may be readily increased to about 18,000,000 United States gallons by raising the walls of the tanks. When a tank is required to be cleansed, which will be very seldom the case, it will be necessary for part of the liquid contents to be pumped into the sewage channels, so as to be capable of being treated in other tanks.

Bacterial Treatment of Crude Sewage of London.

Dr. Frank Clowes, chief chemist of the London County Council, has recently presented to the main drainage committee of that body the second report prepared by himself and Dr. Houston on the bacterial treatment of crude sewage. The special phase of the question reported upon is experimental intermittent treatment of London crude sewage in the coke beds at Crossness, Dr. Clowes dealing with the chemical side and Dr. Houston with the bacteriological. The report gives the nature and results of the experiments in great detail, and contains a mass of highly interesting information.

The coke beds were filled with sewage until the coke beds were just submerged. The sewage was allowed to remain in contact with the coke for several hours, and finally the liquid was completely drained away, the coke then remaining in contact with the air for sometime. This process was repeated at regular intervals. The beds consisted of three brick lined tanks, with an area of about twenty-six square yards each, two of them being twelve feet in depth and the third six feet. Two of them were in series, that is to say, one was a "primary" and the other a "secondary" filter, the latter being the filter six feet in depth. The single bed was filled to a depth of four feet with coke broken to "walnut" size. This gave an average capacity of 3,000 gallons, which is equal to 50 per cent. of the gross capacity. The volume of the coke amounted to 960 cubic feet. In a similar way the double tanks were filled to a depth of six feet, which gave an average capacity of 4,500 gallons. The times occupied were as follows: Filling, seven minutes; resting full, three hours; emptying, one hour; rest for aeration, eight hours. It was found that it took about four weeks of this process before the beds became "matured" so as to exert the full purifying action upon the sewage. The beds are not worked on Sundays, and have also had various periods of rest. A very complete account, extending over several months, is given of the making of each of the beds, and a large number of tables embody the daily results of the chemical examination of the crude and of the treated sewage.

The experiments lasted about ten months, and their general results and the deductions to be gathered from them may be briefly summarized. The coke should be preferably of "walnut" size. The depth of the filtering material did not appear materially to influence the

purifying effect. These depths appear to have varied from four feet to thirteen feet. The single treatment—that through one filter only—seems to have given very fair results. Neither the coke nor the effluent became foul by usage, but the coke becomes covered by a soft film, below which the coke remains perfectly hard, and no sand penetrated two millimetres below the surface. The net capacity of the filter is not restored by prolonged aeration, but vegetable tissue, which is the main cause of decrease in capacity after use, can, before entering the filter, be separated from the sewage by a "brief period of sedimentation."

With regard to the very important question of the amount of sewage which can be treated daily by a superficial unit of the coke bed, we read:

It originally amounted to 555,000 gallons per acre per day for the four-foot coke bed, and to 822,500 gallons per day per acre for the six-foot coke bed. This represents in each case one filling per day, but, as has already been stated, two fillings have been made successfully for six months, and this corresponds to 1,665,000 gallons per acre per day for the six-foot coke bed. These amounts are reduced after ten months' working of the coke beds to 370,000 gallons per acre for a single filling of the four-foot coke bed, and to 673,400 gallons per acre for the six-foot coke bed.

An increased depth of coke bed, it is pointed out, would probably augment the daily rate of treatment, and that a thirteen foot coke bed should treat 3,500,000 gallons per acre per day.

In speaking of the purifications effected by secondary treatment, Dr. Clowes points out that whereas a single coke bed removed all the suspended matter, and 51.3 per cent. of the dissolved putrescible oxidisable matter, the secondary process effected an additional purification of about 19.3 per cent.

The effluent from the filters is in no way harmful to fish. In fact they live and thrive in it, which is more than can be said for chemically purified effluents, which are lacking in dissolved oxygen, and probably on that account are inimical to the respiration of the fish.

The results obtained from the bacteriological examination of the effluent by Dr. Houston show that the treatment does not reduce their number. What it does show is stated thus:

It shows that the presence of many bacteria in the effluent is possibly unobjectionable, and is probably necessary for the purpose of continuing the purification of the effluent when it has flowed into the river, but it further shows that some of the bacteria whose presence might be looked upon as undesirable in drinking water pass through the coke beds.

The general conclusions are that the effluent may safely be passed into the river below the intakes of the water companies and cut off from them by locks; that it is sweet and entirely free from smell; and that under no conditions will it again become foul after it has mixed with the water in the river, nor will it interfere with fish life.

The advantages of bacterial over chemical treatment are thus summed up by Dr. Clowes

- (1.) It requires no chemicals.
- (2.) It produces no offensive sludge, but only a deposit of sand or vegetable tissue, which is free from odor.
- (3.) It removes the whole of the suspended matter, instead of only about 80 per cent. thereof.
- (4.) It effects the removal of 51.3 per cent. of the dissolved oxidizable and putrescible matter, as compared with only 17 per cent. removed by chemical treatment.
- (5.) The resultant liquid or effluent is entirely free from objectionable smell, and does not become foul when it is kept; it further maintains the life of fish.

This report cannot fail to be of great value to those interested in the subject.

Pavements Between Street Railway Tracks.

[Paper by C. H. Rust, city engineer of Toronto, Canada, read before the convention of the American Society of Municipal Improvements.]

In 1891 the exclusive privilege of operating the street railways in the city of Toronto, for a period of thirty years, was disposed of to a company now known as the Toronto Railway Company. The clauses of the agreement, made between the city and the company, that refer more particularly to this paper, read as follows:

"The purchaser shall maintain the ties, stringers, rails, turn-outs, curves, etc., in a state of thorough efficiency and to the satisfaction of the city engineer, and shall remove, renew or replace the same as circumstances may require, and as the city engineer may direct. When a street upon which tracks are now laid is to be paved in a permanent manner, on concrete or other like foundation, then the purchaser shall remove present tracks and substructures and replace the same, according to the best modern practice, by improved rails, points and substructures of such description as may be determined upon by the city engineer as most suitable for the purpose, and for the comfortable and safe use of the highway by those using vehicles thereon, and all changes in the present rails, tracks and roadbed, construction of new lines or additions to present ones, shall be done under the supervision of the city engineer and to his satisfaction.

"(A). In the event of the purchaser desiring to make any repairs or alterations to the ties, stringers, rails, turn-outs, curves, etc., on paved streets, the purchaser shall repave the portion of the roadbed so torn up at his own expense.

"11. When the purchaser desires or is required to change any existing tracks or substructures for the purpose of operating by electric or other motive power, approved by the city engineer and confirmed by the council, the city will lay down a permanent pavement in conjunction therewith upon the track allowance (as herein defined) to be occupied by such new tracks as substructures. This shall first apply only to existing main lines and thereafter to branch lines or extensions of main lines and branches, as and when the city engineer may from time to time recommend and the city council may direct and require; but such tracks as are now laid on a permanently formed roadway must, when so required as aforesaid, be changed by the purchaser as hereinbefore provided, without any change of roadbed being made or any expense occasioned to the city thereby."

Under the terms of the agreement the company pays the city treasurer \$1,600 per annum per mile of double track and 8 per cent. of the gross receipts. When the receipts exceed \$1,000,000, 10 per cent. is to be paid.

To raise the money for constructing these permanent pavements debentures were issued, payable in ten years, and the revenue derived from the mileage and percentage of gross receipts is used to pay interest and sinking fund upon these, the total amount of bonds issued up to the present time being \$1,210,776 and the annual payment to provide interest and sinking fund is \$149,136. This is at present very nearly the amount received from the street railway company, but as these pavements between the tracks will last for a much longer period than ten years, in a few years there should be a considerable revenue derived from this source.

A great diversity of opinion has arisen as to the meaning of the word "permanent," used in connection with pavements. In 1888 this question was in the High Court of Justice before Judge Rose, in a case brought by the corporation of Toronto against the old Toronto street railway company, and after a considerable litigation it was finally settled, without, however, the judge giving his opinion as to the meaning of the word "permanent." When the present company obtained its franchise the interpretation of the word was again subjected to a great deal of discussion, and in 1893 the continuation of the work of changing the rails by the company and the construction of the pavements were postponed from April until August, pending a settlement as to the meaning of this word. The writer has always taken the ground that in this case the word "permanent" refers to pavements with a concrete foundation, and this has since been taken as the meaning of the word as mentioned in these clauses. It is a great pity that this word should be so frequently used in connection with pavements. It would certainly be well in future cases to state explicitly what is a permanent pavement.

In compliance with the provisions contained in the previously mentioned clauses, in the spring of 1892 plans and specifications for paving the track allowance on King, Queen, Yonge and other streets were prepared, and on the 28th of June, 1892, the street railway company laid down a temporary track on King street, west of Simcoe street, and the contractor for the pavements commenced work. The work of changing the tracks and constructing permanent pavements on the above streets was carried on continually until winter set in (with the exception of a week's intermission during the time of the Industrial Exposition). The amount of track taken up and relaid this season was 29.9 miles. The method then adopted in paving the track allowance is shown on the sketch attached to this paper. The rail adopted by the company and approved of by the city was a 6½-inch steel girder rail, weighing seventy pounds to the yard, and having a web three-eighths inch in thickness and a base of four and one-half inches wide. A slight alteration was afterward made in the size of the base, making it five inches instead of four and one-half inches. The rail now weighs about seventy-three pounds to the yard. From experience since gained a heavier section of rail should have been used. The following are the quantities of materials and weights required to build one mile of single track:

114,714 tons of seventy-three-pound rails per mile.

5.85 tons of fish plates, seventeen pounds per pair.

1,800 cedar ties.

1 ton of spikes, three-quarters pound each.

1 ton of bolts and nuts, one pound each.

The work of constructing these pavements and the laying of new rails was carried on continuously until the work was practically completed in 1894, there being only a few extensions constructed since. In constructing these new pavements the street railway company took up the old rails, tamped the gravel under the ties put down new rails and leveled them and the paving contractor did the rest of the work.

It may be of some interest to give the amount of work done in each year, the average cost per lineal foot (the width paved being 15 feet for double track), the

average rate of progress per day and the different classes of paving material:

1892—29.9 miles single track cost.....\$322,555 60
1893—26.1 miles single track cost..... 392,030 00
1894— 9.8 miles single track cost..... 116,942 61

Average cost per lineal foot of double track for the different classes of pavement during these years was:

Asphalt	\$ 23
Granite	2 43
Brick	4 21
Cedar blocks	3 83

This covers the cost of stone or scoria toothing, but where granite was used the contractor was allowed to relay the blocks that were on the street.

Average amount done per day was:

Asphalt.....	131 lin. ft. of double track
Granite	56 lin. ft. of double track
Brick.....	73 lin. ft. of double track
Cedar block.....	96 lin. ft. of double track

In 1894, on McCall street, the method of construction was slightly altered as to the system of laying the granite or scoria toothing. It was found that when the blocks were laid as headers and stretchers that the water lodged next to the block and assisted in destroying the asphalt. To prevent this it was decided to lay scoria blocks, 4x5x9 inches, parallel to the rail and then lay the asphalt. The practice had been to lay the first six inches of concrete up to the bottom of the rail, then lay the scoria blocks in mortar and finally put in the remainder of the concrete. On this street a change was also made in this respect. The whole of the concrete was put in at once and while still wet scoria blocks were pounded into it and left to consolidate with the concrete before the asphalt was laid down. In any extension constructed since 1895 wooden ties have been dispensed with and steel tie bars, 2x3-8 inches, placed 6 feet apart, are used, the rails being laid on a solid bed of concrete 8 inches in depth by 20 inches wide. This method of construction is much superior to the first type adopted and is largely used in other cities.

After an experience of six years of the different materials used, it is evident that, with the conditions existing in Toronto, asphalt is not a suitable paving material to be used between street railway tracks. After having been down only four years, the asphalt commenced to disintegrate. This was at first more noticeable where the asphalt joined the toothing, but it was not long before the rest of the material between the rails commenced to wear into holes. This was due probably to the following causes:

The lack of proper foundation under the ties, which was shown by the settlement of the rails in several places, the impossibility of properly tamping the asphalt between the toothing and the constant watering of the asphalt, rendered necessary by the dust caused by the passage of the cars, and also by climatic conditions. Upon King street, which was the only asphalt pavement laid without toothing, a rut was soon formed, rendering necessary constant repairs. The fact of the lip of the rail not being quite as high as the head and the gauge of the track being four feet ten-seven-eighths inches instead of four feet eight and one-half inches, probably had a great deal to do in forming this rut.

As previously mentioned, the first pavement were laid in 1892 and in 1897 it became necessary to commence tearing up the asphalt and replacing it with granite, scoria or brick, depending upon the amount of travel upon the street. By 1900 all the asphalt between the rails will have been replaced by a more permanent material. Up to the present time seven and one-half miles of this

work have been done. As these asphalt pavements were guaranteed for five years, arrangements were made with the contractors whereby they substituted brick for this asphalt, and were paid \$1.50 per square yard, but afterward when the guarantee expired the price paid for substituting scoria for asphalt averaged about \$2.40 per square yard. This includes taking up the old asphalt and also four inches of concrete. The amount of money spent up to the present time in substituting a more permanent material than asphalt is \$137,340.19. In putting in blocks in place of asphalt, the asphalt was first taken off and then the concrete had to be picked out so as to afford room for the blocks, which were bedded on a cushion of sand. Fortunately, on most of the streets the concrete was put in between the rails just to a depth of four inches, and it was not a very difficult operation to take this out. Granite is no doubt the most durable material to use between street railway tracks, but owing to the very strong opposition of the cyclists to this material not so much of it was used as the department would have liked, and scoria blocks, imported from England, were used instead. On streets where there was not a great deal of travel, Canadian bricks were used. Cement grout was almost entirely used for this work, although some filling was done with paving pitch; but cement was found to be the most satisfactory. Owing, however, to the impossibility of stopping street car traffic while this work was in progress, it was very difficult for the filling to become properly set. On King street during the past summer, where we were substituting scoria block for the asphalt, a portion of the pavement between the tracks was laid with concrete. It has been down now some two months, but not long enough to know the result.

PRINCIPALS WILL BE PAYMASTERS.

At Baltimore, Md., it has been decided to change the manner, as well as the date, of paying the school teachers their salaries. Hereafter the principal of each school will be given a check for the amount of the salaries due the teachers in his or her school, and will then go to one of the banks to have it cashed. Each principal will thus become the paymaster for his school. The payments will be made on the last Friday in each month, instead of on Saturday. The monthly pay rolls aggregate \$94,000. The change was made on account of the dissatisfaction with previous methods expressed by many of the teachers. Heretofore the teachers have been required to call at the city hall for their pay.

REFUSED INDEPENDENT TELEPHONE FRANCHISE.

The Rockford, Ill., city council has recently refused an independent telephone company a franchise to operate in that city by a vote of 13 to 1. The Bell Telephone Company has recently completed entire reconstruction of the telephone system there, including subways through the business portion and entire new apparatus in central office. The independent company was headed by Frank and Fred Bills and it was only after the most careful investigation by means of committees, etc., that the franchise was refused the company.

A PROPOSED MUNICIPAL PROGRAM.

[Report submitted to the National Municipal League by Dr. Delos F. Wilcox, Chairman.]

The Committee on Municipal Program, in its survey of the municipal situation in the United States, has recognized the existence of three fundamental evils in the government of our cities:

1. The first of these evils is economic, and consists in the waste of public funds, through the multiplication of offices, the employment of inefficient officers, the payment of exorbitant prices, and the expenditure of large sums in relatively fruitless enterprises.

2. The second evil is "political," in the true sense of the term, and consists in the inadequacy of the service rendered by the city government to the people of the city and state. It is believed to be the true function of the city as a political organization so to regulate the relations of the citizens and as to master the environment of urban life that the people of the city may have the fullest possible opportunity for self-development in civilization. As a matter of fact, however, the physical, moral, and esthetic conditions, amendable to political control, are often so neglected that the true ends of associated life in the city are partially unattainable. To say nothing of rapid transit and abundant light and water, many cities are notoriously lax in the protection of life and property, and particularly in sanitary protection. This inadequacy of social service is very clearly seen in the lack of foresight so often displayed by city authorities in the laying out of streets, parks, and playgrounds, and in the provision for schools.

3. The third evil of city government is a moral one, and consists in the corrupt use of civil authority for the furtherance of individual ends. It is patent in the utilization of public funds as assets with which to pay political debts, in the barter of franchises and contracts for private remuneration of one kind or another, in the failure to enforce the laws, and sometimes even in the protection of vice and crime for a money contribution or for political support. The evil gets its chief importance, not from the direct financial loss to the city, nor from the freedom enjoyed by the vicious and criminal classes, but from the fact that it throws politics into disrepute and degrades civic ideals, so saturating public opinion with distrust and a sense of helplessness that co-operation among the people for the attainment of truly political ends is rendered well nigh impossible.

Every existing evil has one or more causes, and to destroy the evil the causes must be removed. The causes of the evils of municipal government are, many of them, plain to even the casual observer. Some, however, are more obscure, and often the obscure cause is as important as the patent one. The committee finds the following principal causes of the fundamental evils already mentioned:

I. Of the economic evil, waste of public funds.

1. The first cause is ignorance, which takes three forms—ordinary illiteracy, or narrowness of intellectual culture among public officials, ignorance on the part of the people of the actual processes of their government, and that species of ignorance exhibited by men possessing wide general culture when they are called upon to perform public duties of a special

nature and for which they have had no special preparation.

2. A second cause of waste in partisanship, by which is meant, not the legitimate adherence to political organizations that stand for different public policies in the city, but rather the introduction of irrelevant issues into the choice of city officers and the solution of city problems.

3. A third cause of waste is state interference, by which is meant the attempts so often made by state legislatures, the majority of whose members are ignorant of city conditions, or at least responsible to a constituency thus ignorant, to settle local problems of government. If partisanship means the introduction of irrelevant issues, state interference means the introduction of irrelevant men to govern.

4. A fourth cause of waste is municipal irresponsibility, which is the counterpart of state interference, and consists in the conduct of municipal affairs without due regard to the duty that the city as a local organ of government owes to the State at large.

5. A fifth cause of waste is indefiniteness of organization, on account of which the incidence of responsibility is obscure and the people are unable to hold themselves and their officials to strict account for the right conduct of public affairs.

II. Of the political evil, inadequacy of service.

1. The first cause is individualism, an undeveloped civic consciousness, on account of which the people tend to rely upon private effort for the satisfaction of public needs, and in many cases to stigmatize legitimate co-operative civic enterprises as "socialistic" and therefore unwise and dangerous.

2. A second cause of inadequacy of service is inadequacy of power, the city being unable to undertake needful civic enterprises on account of the parsimonious enumeration of its powers in its charter, or on account of obstructive limitations put upon its procedure by the constitution and laws of the state.

3. A third cause of inadequacy of service is undemocratic organization by reason of which the people of a city are unable to make their will effective.

III. Of the moral evil, official corruption.

1. The first cause is greed, not the greed of politicians particularly, but the greed of people generally in a community where the struggle for life is intense and wealth takes the place of culture in popular ideals.

2. A second cause of corruption is the lack of civic integrity, that is to say, a deficiency in civic ideals and an absence of civic unity, due in large measure to the newness and compositeness of most American cities.

3. A third cause of corruption is the private control of public privileges, by which special powers are intrusted to individuals and corporations without due responsibility for their proper use.

The committee recognizes that many of these causes are such as can be removed only through long-continued processes of education and social development. There are, however, many of them inherent in our present system of laws, and it is to the removal of such through a better organization of city government in all its relations that the committee's attention has been specifically directed.

The conditions of American commonwealth government—of which the municipality is a part—are such that a program of legal reform for cities must be divided into two sections, one to be in-

corporated in the constitutions of the commonwealths, and one to be enacted as a part of the general laws. The committee has, therefore, drafted a constitutional amendment embodying those remedies for the evils of municipal government which, in its opinion, may properly be made a part of the fundamental law, and also a general municipal corporations act in which these remedies are elaborated and supplemented by others not considered so fundamental as to require constitutional guarantees.

Following is an outline of remedies proposed by the committee for the several causes of municipal misgovernment already enumerated:

1. Ignorance.—To remove this cause of wastefulness in public expenditures several measures are recommended.

a. Competitive examinations to test fitness for appointment to positions in the city's administrative service. This would eliminate illiteracy and general intellectual unfitness from among office-holders.

b. Indefinite tenure of office for all members of the administrative service except the mayor. This would tend to encourage permanence in official tenure, thus leading to the acquisition of special knowledge and experience on the part of public officers.

c. Financial accounts and reports. A complete set of records is to be kept by the city controller, showing the city's financial transactions, and the accounts of every grantee of a public franchise, and reports are to be made to the council and state fiscal officer. This will insure the opportunity for knowledge in regard to the financial affairs of the city, not only to the officers of the city and state, but also to the people at large.

d. Roster of administrative service. A public list of all public employees, except ordinary laborers, with date of appointment, compensation, and other information given, is to be kept by the civil service commissioners. This will give the people an opportunity to know just who the officers of the city are and how much they are paid.

2. Partisanship.—To remove, so far as possible, this cause of wastefulness and inefficiency, the following measures are proposed:

a. The separation of municipal from state and national elections. This will permit the people to settle municipal questions at other times than when state and national issues are pressing for immediate consideration.

b. The requirements that the nomination of all elective city officers shall be by petition, and that the voters must vote separately for each candidate for whom he desires to vote, and that the names of all candidates for the same city office shall be arranged alphabetically under the title of the office to be filled will favor freedom of nominations and make it easier when desirable to escape from the dictation of party primaries and conventions.

c. Civil service reform and the prohibition of political assessments. This will take away from political and personal machines two chief sources of their strength, the power to reward their followers with the spoils of office and the power to replenish their treasuries with enforced contributions from the army of public servants dependent upon them for their positions.

3. State interference.—This prolific source of municipal difficulty will be greatly diminished by certain measures proposed in the program.

a. The main outlines of municipal government are established in the constitution itself, thus putting the city on a par with the central state government to a certain extent and preventing the constant interference of the state legislature in matters settled by the constitution or assigned to the municipal authorities for settlement.

b. Limitation of special legislation. Obnoxious special legislation is made difficult by requiring for the passage of any special act an absolute two-thirds vote of the legislature in the affirmative, to be followed by a reference of the bill to the council of the city affected for approval; sixty days are allowed for the consideration of the measure by the local council, and if at the end of that time the council has failed to signify its approval, the measure can become law only when passed a second time by an absolute two-thirds affirmative vote of the legislature, this two-thirds vote to include three-fourths of all the members representing districts outside the city or cities affected. Special legislation is defined as any legislation applicable to less than all of the cities or to less than all of the inhabitants of the state. These provisions will make state interference impracticable unless the welfare of the state demands it so strongly as to make the members of the legislature not representing the locality affected almost unanimous.

The grant of exclusive privileges or franchises to any private individual or corporation by special act of the state legislature is absolutely prohibited.

c. General municipal corporations act. State interference in local affairs is limited by a constitutional requirement that the legislature shall pass general laws applicable to all cities which shall by popular vote choose to be governed by them. The committee proposes as the second part of its program such a general corporations act. The existence of such a law would often do away with the necessity of special legislation, where a city wishes to be incorporated or to exercise wider powers than have been granted to it in its existing charter.

4. Municipal irresponsibility.—This cause of extravagance and inefficiency in city government can be met only by the recognition of the city's proper relation to the state and by the provision of an adequate system of central control. The specific measures to this end proposed in the program are three:

a. Limitation of municipal debt and tax rate. It is proposed to incorporate in the constitution a limit upon the aggregate debt which a city can incur for other than self-supporting undertakings and a limit upon the municipal tax rate for all purposes exclusive of necessary public debt charges. These limitations are placed upon the city in recognition of the fact that the resources of the state itself are crippled by municipal extravagance and to enforce upon the municipality its responsibility to the state for the moderate use of its delegated powers.

b. Declaration of local agency. It is proposed to declare the city within its boundaries the exclusive local agent of the central government for the enforcement of state laws, except as may otherwise be provided for all cities alike. This measure would throw upon the city a definite responsibility, and would tend to do away with the feeling of hostility toward the state authorities which the people of cities are likely to entertain whenever the central government sends special agents among them to execute general laws.

c. State supervision. It is proposed to

open the way for a system of central administrative control by declaring that cities shall be subject to the supervision of such state officers or administrative boards as may be established by general laws applicable to all cities. It is specifically proposed to require detailed financial reports by the city authorities to the state fiscal officer, these reports to be laid before the legislature and published as a part of the public documents of the state. Furthermore the governor may remove the mayor after a hearing for specified reasons involving misconduct, incapacity, or negligence.

5. Indefinite organization.—Responsibility for the right exercise of municipal powers is to be defined by the following measures of organization:

a. The mayor and members of the council are to be the only officers elected by the people, and they are to be chosen on general ticket. It is believed that this provision will make popular responsibility for the choice of good and capable officials more definite by reducing the number to be chosen at any one time and by requiring that the attention of the whole city be concentrated upon all the candidates.

b. Powers of the mayor. It is proposed to concentrate in the mayor full responsibility for the conduct of the administrative service by giving him authority to appoint and remove all city officers, except the controller, subject to the civil service regulations. He is permitted to attend council meetings and take part in the proceedings, but without a vote; and he must prepare the annual budget, from which the council may subtract, but to which it may not add. The mayor is also given the usual veto power over the acts of the council. It is believed that the large powers of the mayor will enable him to give an excellent administration if he is capable and conscientious, while the careful restrictions put upon him by the civil service provisions and the checking powers of the governor, the council, and the controller will prevent him from stopping the machinery of government by his blunders if he is inefficient or from turning over the government to a set of rascals if he is a knave.

c. Powers of the council. The council is made the sole legislative authority of the city. It exercises all corporate powers not specifically assigned to some other authority. It passes all ordinances and makes all appropriations. It may establish new municipal offices and may investigate any department of the city administration. Finally, the council elects and may remove the city controller and receives his reports. Although the principle of the assignment of administrative and legislative functions to separate authorities has been adopted for the sake of defining responsibility, nevertheless the council is a body of vast powers for both construction and obstruction. It is to be remembered that municipal legislative functions increase in importance with the decrease of state interference and the establishment of municipal home rule.

d. Powers of the controller. The financial officer of the city, elected by the council for an indefinite term, is clothed with full power and responsibility for keeping the expenditure of public funds within legal channels. It is his business to audit claims, countersign all city drafts or warrants and contracts, keep the city's books, and make financial reports to the council. He may also require information concerning the financial transactions of any grantee of a public franchise, and shall receive and

publish financial reports from every such grantee.

e. Citizens' powers. In order to make it possible for the people to help in the enforcement of the laws, it is provided that a certain number of citizens who are householders, acting together, may bring suit to enjoin the execution of any illegal contract, the payment of illegal claims, or the payment of the salaries of persons illegally appointed to office; they may also bring suit to recover money illegally paid out.

6. Individualism.—In the nature of the case the committee can offer no legal remedy for this cause of inadequacy of municipal service. It is believed that the stubborn argument of civic necessity combined with the ample powers possessed by the citizens under the proposed "Program" will gradually overcome however much of evil there is in individualistic tendencies.

7. Inadequacy of power.—The remedies proposed under this caption may all be included in the term "municipal home rule." The provisions recommended for the attainment of this end are numerous and important:

a. General grant of powers. Instead of the detailed enumeration of powers granted to the city we are to have besides the specification of the chief ones a general grant which will enable the city to meet emergencies as they arise, without seeking further legislative grants. The city may acquire, hold, and manage property. The city is to have authority to undertake all public services, including such things as the operation of street railways and ferries and the distribution of gas, water, and electricity. It is vested with power to perform and render all public services and with all powers of government subject to the limitations contained in the state constitution and to laws applicable either to all the inhabitants of the state or to all the cities of the state and to special laws as already defined.

b. Powers of taxation, eminent domain, and debt making. Within the corporate limits the city has the same powers of taxation as are possessed by the state; it may license and regulate all trades, occupations, and business; it may levy special assessments upon property benefited to pay for local improvements. In order that its authority to undertake public service enterprises may be real, the city is given authority to acquire land for municipal purposes by purchase or condemnation within or without the corporate limits, and authority to incur unlimited indebtedness for self-supporting undertakings that produce revenue sufficient to take care of current interest and pay at maturity the principal of the debt incurred on their account.

c. Annexation of territory. Cities shall have power to annex territory with the consent of its inhabitants subject to the approval of the state legislature. This measure will enable the local authorities to keep the corporate boundaries of the city and the sphere of municipal service co-extensive with the natural boundaries of the city.

d. Application of the general municipal corporations act. This act shall apply to those cities only which by popular vote determine to incorporate under it. In this way every city is permitted to choose whether it will accept the benefits and obligations of the general municipal system established by the legislature, or will apply to the legislature for a special charter, or will under certain conditions frame its own charter.

e. Establishment of minor courts and municipal offices. Every city shall have

power to complete its own organization by the creation of new offices and the establishment of municipal courts. Thus the city will be enabled to adapt its organization to the increasing demand upon it.

f. Framing of charters. Any city with a population of 25,000 or more may elect a board of citizen householders to frame a charter which, if adopted by the people, shall become the organic law of the city. This charter may be amended at intervals of not less than two years by proposals submitted to popular vote. In these provisions we have the last guaranty of municipal self rule, by which the city becomes responsible for not only the proper administration of the laws, but also for the wise organization of the machinery of government itself.

8. Undemocratic organization.—To perfect the organization of democracy in the cities, thus enabling the will of the people to become directly effective, it is proposed to make possible certain radical changes of political methods.

a. Minority or proportional representation. The committee, feeling unable to be dogmatic as to the best mode of representation in the council, proposes to leave the legislative authority of each city free to devise a suitable plan for such representation to become effective when approved by the people, and upon a duly authenticated petition therefor, a proposition to establish such a method of representation must be submitted to popular vote.

b. Direct legislation. It is also proposed to leave each city free in like manner to establish a system of direct legislation, so that qualified voters of the city may submit and a majority thereof voting thereon may decide by direct vote upon propositions relative to city matters.

c. Civil service reform. The organization of democracy is to be aided by this reform in methods of appointing and promoting public officials, thus putting all of the people upon an equality and enabling those best fitted for official duties to enter the service of the city.

9. Greed.—This prolific cause of civic corruption cannot be removed by direct legal remedies, but the organization of the city government under the proposed program, the direct and tangible responsibility enforceable upon the public officials, the publicity of their official acts, the ample opportunity for the citizens directly to participate in, and, if they choose, to control the conduct of public affairs will tend to diminish and make it possible to remove official corruption as a cause of municipal ills.

10. Lack of civic integrity.—This cause of corruption is also beyond the direct reach of legislative remedies, but conditions which favor the awakening of a civic conscience and make possible the establishment and enforcement of a high standard of civic conduct are created under the proposed Municipal Program. So far as the composite character of the population is responsible for the lack of civic integrity, this cause will disappear with the gradual assimilation of the foreign elements.

11. Private control of public privileges.—For this cause of corruption more tangible remedies can be suggested. The program does not go so far as to say that the city ought not to grant any franchises or special privileges whatever. But it proposes particular safeguards to prevent the betrayal of the public interests.

a. Limitation upon franchise grants. The rights of the city in its public places are declared inalienable except by a four-

fifths vote of all the members of the council approved by the mayor, and no franchise shall be granted for a longer period than twenty-one years. In this way the grant of perpetual franchises will be prevented and the corrupt grant of franchises on any conditions will be rendered difficult.

b. Publicity of grantees' accounts. Every grantee of a municipal franchise is required to furnish detailed financial reports to the city comptroller, thus insuring to the people and officers of the city the opportunity to know what semi-public services cost and to hold those who perform them responsible for adequate service at reasonable rates.

c. Municipal powers. The city need not permit the private control of public privileges. It "may, if it deems proper, acquire or construct, and may also operate on its own account, and may regulate or prohibit the construction or operation of railroads or other means of transit or transportation and methods for the production of transmission of heat, light, electricity, or other power, in any of their forms, by pipes, wires, or other means."

The proposed Municipal Program has taken democracy for granted, and has attempted to organize municipal government in relation to this great fact. There are those who hold that the future experience of the world will discredit democracy as a method of government, and in particular that democracy will prove itself inadequate for the solution of city problems. But at present, with the history of the past before us, the hope of humanity seems to lie in the perfection of democracy rather than in any retrogressive step, by exalting rather than by lessening popular responsibility.

THE "MACHINE" IN POLITICS.

The machine that is in itself the most effective kind of ballot reform was used at the elections this year in the cities of Buffalo, Rochester, Utica and Ithaca, N. Y., and last year in the city of Rochester. Voting by machinery is not a new idea, but until the Standard voting machine was perfected, no automatic device had ever been constructed that could be considered thoroughly reliable. The first trial of this voting machine on a large scale was in Rochester in 1898, when the complete returns of the seventy-three election districts and 30,000 votes were collected at a central office in thirty-nine minutes. Utica was so well pleased at that election with the two machines they had on trial, that they gave an order for a full equipment.

After a very thorough investigation of the subject, starting off with a prejudice against the use of a mechanical contrivance for voting, the board of aldermen of Buffalo, with but one dissenting voice, adopted the Standard voting machines.

By the use of the voting machines in the city and county election in Buffalo on the 7th of this month, the complete returns from 108 election districts in the city of Buffalo, including 60,000 votes, were known officially in one hour and twenty-seven minutes after the polls closed, and had it not been for a couple of trivial accidents, would have been known in less than an hour.

In Rochester the returns from all districts were returned in forty-five minutes after the polls closed.

In Utica it was done in twenty-eight minutes, and in Ithaca but seventeen minutes were required.

Of course in all cases special efforts were made to get the result in quickly, as a test of the new machines. The main

fact of importance in connection with the use of the machines is not that the returns can be made in an incredibly short space of time, but that there is no opportunity for a dishonest count or for the throwing out of any ballots as defective or improperly marked.

The Standard voting machine applies the absolute certainty of mathematics to the counting of the vote. No man's vote can be recorded twice; no man's vote can be rejected once he has been allowed to cast it. The principle of the device is simple, and every possible safeguard that can be devised to render it absolutely accurate has been applied to it. There are no defective ballots.

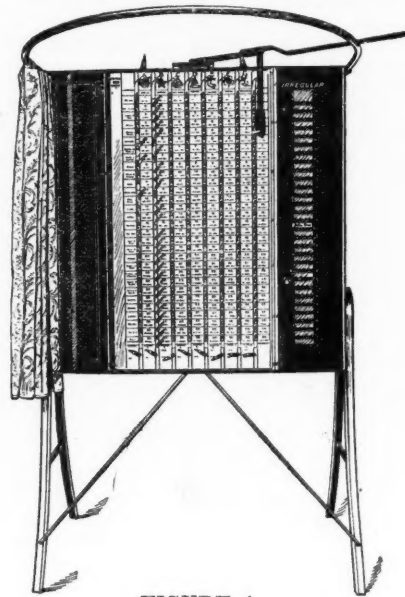


FIGURE 1.

Figure 1 shows a correct representation of the voting machine as it looks when the voter steps in front of it to cast his ballot, except that the long lever at the top of the machine projects to the left instead of to the right before voting. On the face of the machine are seen the columns of party nominations. Opposite each name is a little pointer, and at the top of each party column is a brass lever with a knob on the end of it.

The process of voting on the voting machine is as simple as the machine itself. In the case of the voter who desires to vote a straight party ticket it is an operation that can be performed in five seconds or less. In Buffalo, in one election district, ninety votes were cast on one machine in the first half hour after the polls were opened—an average of less than one-third of a minute to each voter. In many districts there were more than 750 voters registered, and only 660 minutes were allowed for keeping the polls open, yet the full registered vote was polled and not a single voter disfranchised by reason of delay in the operation of the machine.

To the overhead lever shown in Figure 1 there is attached, as it projects to the left, a curtain, also shown in the cut. The voter steps in front of the machine and grasps the downward projecting handle attached to this lever. He swings the lever to the right, an operation that requires the exercise of practically no physical force, and this draws the curtain around so that only the voter's legs are visible, as shown in Figure 2.

The voter is now screened from public view, and can proceed to cast his ballot in absolute secrecy. He can vote in any way that it would be possible for him to vote with a paper ballot, but in much less

time and with no danger of having his ballot thrown out on the final count. He can vote the straight ticket of any party, he can split his vote in any way he desires, he can (if the law allows it) vote for candidates not nominated by any party, and he can, in the case of two or more similar offices to be filled, vote for a man from each party to fill them.



FIGURE 2.

The effect of pulling down the party lever is to move each pointer in the party column so that it points to the name of the candidate opposite it. The vote has not yet been recorded, however, and the voter is at liberty to change it in any way he pleases, either by pushing back all of the pointers with his hand, in which case he can, if he desires, pull another party knob and vote the entire ticket of a different party from that for which he orig-

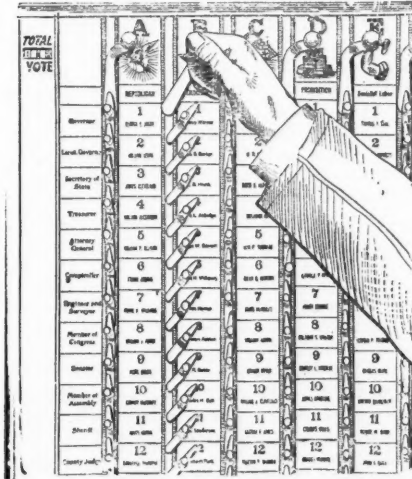


FIGURE 3.

inally intended to vote. Or the voter may split his vote by pushing back the pointer opposite the name of the party candidate for whom he does not want to vote and turning down with his fingers the pointer opposite the name of the candidate of another party for the same office.

If two candidates are to be elected for the same office, the machine is arranged by the election officers so that the voter may vote for men of opposite parties on the same line, but cannot vote for more candidates than the law allows. Figure 4 shows how this device works. The machine is set so that the voter can vote for any two school commissioners for

the term of four years and for any three school commissioners for the term of two years, if he desires to select one candidate from each party, even if it is in the same office line. But not more than the required number can be voted for.

After having arranged the pointers on the face of the machine to suit him, the voter again grasps the overhead lever and swings it to the left. This throws back the curtain and registers the vote for each official for whom the voter has voted. At the same time the counter on which the total vote is registered advances one number. The machine is now ready for the next voter.

The verdict of every one who saw its work in Buffalo at the last election, even of those who were originally opposed to the introduction of the machines, was that it had solved the question of the purity of the ballot in a most effective way.

Nothing that we can write will cover the subject better than the following from the Rochester Democrat and Chronicle of November 26th:

"One of the most clear, complete and intelligent statements of the merits of the Standard voting machine that we have seen has been formulated by the finance committee of the common council of Ithaca, N. Y. The conclusions reported are as follows:

"(1.) The voting machine is a simple, reliable, durable and convenient apparatus for its purpose.

"(2.) The machine compels the deposit of a perfect and accurate ballot, of the form chosen by the voter.

"(3.) It restricts the voter absolutely to the limits of the law and permits him freedom as absolute in voting within that limit.

"(4.) Blank and defective ballots, the usual fault of ordinary methods of voting, are entirely done away with, and no man loses his vote through defect of the system, or fault of his own, if he votes at all. The disfranchised voter becomes unknown.

"(5.) Fraudulent voting is impossible as well as errors in voting.

"(6.) The vote cast is registered, vote by vote, with absolute accuracy and certainty.

"(7.) The result can be declared immediately upon the close of the polls, having been already completely counted.

"(8.) The cost of the system is so much less than that of the old method that the machines usually pay for themselves in from three to seven years.

"The whole case may be summarized in a sentence: 'The machines retain all the virtues and exclude all the vices of the old methods of balloting.' Their use would be entirely justified, even though they involved a more costly rather than a much less expensive system. Their adoption is looked upon by your committee as promoting good politics, good morals and good finance.

"More than ordinary significance can be attached to this report when it is known that Dr. R. H. Thurston, who is the professor of mechanical engineering in Cornell University, is an alderman and chairman of the finance committee. Dr. Thurston is also one of the New York state voting machine commissioners, the other members being Philip T. Dodge and Professor H. de B. Parsons."

NEIGHBORHOOD LIBRARIES IN SCHOOLS.

Dr. Bernard C. Steiner, librarian of the Enoch Pratt library, Baltimore, has been allowed the use of public school rooms after school hours for the work of the library. Only the general outlines of the plan for utilizing the school rooms have been arranged. These include the placing of one or more boxes of books in a school building, the location of the building to be decided upon after consultation with the trustees of the library, Superintendent Wise and the members of the local committees of the school board. An attendant will be placed in charge of the books, which will be dis-

tributed and returned after the method in use at the central and branch libraries.

The use of the library will not be restricted to the children or teachers of the school, but will be open to all who wish to avail themselves of it. It will really be more of a neighborhood library than a school library. It is probable that at first the distributing center—or centers, if more than one school building is used—will be open after school hours on only three days a week. But this is one of the details which will be arranged later. If there is sufficient demand for it, the school room library will be open every afternoon. The Pratt Library will furnish the books and the locked boxes in which they will be kept, and will also provide an attendant.

FLORIDA MUNICIPAL CONVENTION.

The third annual meeting of the Florida Association of Mayors and Councilmen was held at Jacksonville last month. Those present were:

Jacksonville—Mayor J. E. T. Bowden; Councilmen J. W. White, Tom Turner, Henry Rivas, R. B. Burroughs, W. M. Stockton, C. W. Stansell, T. A. Bether, J. K. Munnerlyn and J. W. DesRochers.

Orange City—W. C. Cannons, Mayor; F. C. Graham, Councilman.

De Land—S. B. Wilson, Councilman. St. Petersburg—Edgar Harrison, Mayor.

Orange Park—J. D. Parrott, Mayor. Daytona—Dr. P. R. Bennett, Councilman.

Tavares—J. W. Northrup, president of City Council.

The discussions of the convention pertained exclusively to Florida legislation on municipal affairs. A resolution declaring "that good roads are necessary to the welfare and prosperity of Florida" was adopted. The following officers were elected for the ensuing year:

President, J. W. Northrup, of Tavares; vice president, W. C. Cannons, of Orange City; secretary, J. W. White, of Jacksonville; executive committee, J. D. Parrott, of Orange Park; S. B. Wilson, Thomas Turner, J. M. Des Rochers, J. K. Munnerlyn, W. M. Stockton, of Jacksonville; Edward Harris, of St. Petersburg; Mayor Boyer, of Tampa, and C. Fabian Law, of Green Cove Springs.

Jacksonville was selected a the place for next year's convention.

Personal.

—Mayor W. M. Drennen, of Birmingham, Ala., was a visitor in New York city last month.

—Mayor Hayes, of Baltimore, has announced that Mr. Joseph Packard, Jr., will be the president of the new school board to be appointed in February next.

—William P. Ryan, former deputy naval officer of the port, has been appointed private secretary to Mayor Hayes, of Baltimore. The salary is \$2,300 a year.

—Bernard Carter has been appointed city solicitor of Baltimore under the new administration. He is one of the most brilliant lawyers in Maryland, and heads the legal firm of Bernard Carter & Sons.

—Former Mayor L. H. Gibson, of Zanesville, O., is now engaged as a political correspondent of the Columbus "Post-Press." He will probably represent his paper at Washington during the forthcoming session of congress.

~ WATER DEPARTMENTS. ~

ANNUAL REPORTS.

Water Department officials will confer a great favor upon "City Government" by sending to the Editor copies of their annual reports as soon as same are ready for publicity. All reports will be carefully reviewed in these columns. Do not wait until reports are printed in book form.

Philadelphia Water Improvements.

At last the water improvements so long agitated at Philadelphia seem to be under way of realization. The people voted in favor of a \$12,000,000 water loan at the recent election, and this sum, together with \$3,200,000 already available, will probably be spent forthwith in carrying out the improvements recommended by the commission of expert engineers who recently reported. "City Government" has already published the substance of the commission's report.

Mayor Ashbridge, on November 16, sent to the select council five ordinances providing for the creation of the \$12,000,000 loan, the appropriation of the \$15,200,000, which will then be available for the improvement of the water supply, and granting complete authority to the department of public works to carry into effect the recommendations of the water experts. The ordinances were referred to the committee on water.

Water Mains Too Small.

William S. Crandall, traveling correspondent for "City Government" and an expert on municipal affairs, was recently interviewed by the Columbus, O., "Press-Post" in regard to the water works of that city. He said, in part:

"The equipment of the water department of Columbus is quite inadequate for a city of its size.

"The water mains laid are much too small to serve 140,000 people. The central portion of the system is smaller than the line leading into it from the pumping stations and therefore causes an undue amount of friction which will soon reach a point where it will be utterly impossible to force water enough through them to supply the amount used in twenty-four hours. The only remedy is the relaying with larger pipes, of from 36 to 40 inches in diameter, to serve as feeding lines.

"This condition is not peculiar to Columbus alone. It has been the mistake of many American cities. The city of Erie, Pa., has just completed a relaying of its chief water mains at an enormous expense.

"At the present rates charged for water in this city it will be impossible for the department to produce revenue enough to take care of the bonds which would have to be issued to perform this work.

"From a business man's standpoint the rates are far too low in any event, as they do not give a revenue sufficient to meet the reasonable demands made upon the department at the present time.

"The meter rate charged by Columbus for domestic service is uniform, being 6

cents per 1,000 gallons, whether to a large or small consumer. This practice is not in accordance with the best business policy, for it costs more to deliver 1,000 gallons to the small consumer than to the large, when the reading and repairing of the meter is taken into consideration.

"Out of a list of thirty of the largest cities of the country, but two have as low, or a lower rate than Columbus, viz., Detroit and Buffalo.

"When the system in Columbus reaches the stage of perfection of that in Detroit the department will be able to take care of itself at this low rate, but that day is not yet."

Municipal Works a Success.

Batesville, Ark., began the operation of a new municipal water and light plant on January 1. One of the local papers says:

Although the plant has been in operation only since the first of January, yet its patronage has grown so large in that short time that its receipts now exceed its expenses and yield the city an actual net revenue besides furnishing the city the street lights and fire hydrants entirely free of charge. There are in use on the streets 14 arc and 27 50-candle power incandescent lights. Private consumers are using 750 16-candle power lamps, and the superintendent of the plant has orders for nearly 200 more.

The use of water is quite as general. In fact, Mr. Duffey, the collector, tells us that there is very little difference in the receipts from the water and the lights. About eighty-five families are using the water and about an equal number have taken lights. There is no better water than that drawn from White river. It does not need to be filtered and is as clear as if it came from a spring branch.

In addition to our street lights mentioned above, the city has twenty-six fire hydrants. At the rates being paid by other cities for similar service, our street lights and fire hydrants would cost the city no less than \$3,000 if furnished by private owners. By owning its own plant the city not only gets this service without cost, but makes an actual profit, above the entire cost of operating the plant, from the sale of water and lights to private consumers; and at the same time the rates paid are not higher than those paid anywhere else, but are really lower than those paid in some nearby towns.

London Water Supply.

London, England, is now agitating the question of purchasing from private water corporations their valuable franchises. The eight London companies of course are opposed to this and are putting every obstacle in the way of the city's acquiring the plants. There seems no doubt, however, that the city will ultimately succeed in its endeavor to control its own water supply. The report of the water committee, recently presented to the London county council, reveals the alarming fact that last August the water companies abstracted practically the entire flow of the Thames at their intakes. When it is considered that the consumption of water in London is increasing at the rate of 12 per cent. per annum, and that no construction work has been begun to augment the supply, the case is truly alarming.

Two methods are proposed for increasing the supply. One, known as the companies' scheme, is to construct storage reservoirs in the Thames Valley. The

county council's scheme consists in the formation of reservoirs in the valleys of the Upper Wye and Yrfon in Wales, together with collecting conduits from the Towy, and the construction of an aqueduct along the north side of the Thames valley as far as Elstree, together with filter beds and antimation main up to the boundry of the county of London. The county will urge parliament, at its next session, to pass the necessary legislation to permit the purchase of the companies' plants and the construction of the augmented supply from Wales.

Electrolysis and Water Pipes.

[Abstract of a paper by F. A. W. Davis, vice-president of the Indianapolis Water Company, read before the convention of the Central States Water Works Association.]

The electrical current is so subtle and so destructive that we can not attach too much importance to it. Some systems may show no effects of electrolysis for years to come, but nevertheless the destruction is going on and in a very definite manner. I have found water mains affected without showing even the breaking of the coating of the pipe. Almost invariably when you find the sand, gravel and earth adhering firmly to your pipe, there is destruction going on, although the pipe itself may show no visible evidence of the fact. If you analyze the earth, which is so hard and so firmly attached to your pipe, you will find that the iron of your pipe is being carried into the earth by the electricity, leaving only the carbon. Again, I have found pipe having a graphite color and feeling smooth, but upon removing the earth and running the point of a knife over the metal, the knife entered soft spots in the pipe. This is the beginning of the pitting of the iron. In lead services, I have found the erosion or destruction of the pipe to be rapid, four months being sufficient to destroy a five-eighth lead service weighing 3 pounds to the foot. The action of the electricity upon the lead pipe differs. In one case I found fine bright threads of lead in the earth. In other cases I have found the lead charred so that it would be hard for you to determine that it was lead. In still another case, I found the electricity had produced a substance like white lead. Taking it in your fingers and mashing it, it would leave your fingers white as would white lead used in paint.

We have found as many as fifty volts coming from a meter connection. In one building the current was so strong that when the water pipe was cut in two, a piece of iron the thickness of a shovel placed in the opening was soon melted by the current. In one case the singular spectacle of a fire hydrant apparently on fire was seen. Gas had escaped from a gas main and was coming up around the fire hydrant and had been ignited by the current from the street car company's line, passing from the casing to the hydrant. In several instances the Manufacturers Natural Gas Company, of Indianapolis, found the current so strong that when a pipe was separated, the gas ignited from the sparks and endangered the lives of the workmen, and in two in-

stances almost set fire to buildings near by.

It has been predicted by some writers that in ten years time water and gas pipes will be utterly destroyed and that we will have to substitute glass for water mains. Such a proposition as that can not be entertained one moment by any board of trustees or corporation management of water works. The electrical corporations operating street railway cars are the aggressors and are the destroyers of property, and they alone should provide a remedy. Franchises have been granted street railway companies after the water works, and surely a city can not grant a franchise to any corporation which will destroy the property of the owners of a previous franchise for gas, water or steam heating. So little attention has been paid to this great destroyer that we have yet to have a decision by the courts; but the time is now at hand when the courts must render a decision, and in my judgment there can be but one opinion, and that is that the street car companies are responsible for the destruction of the water and gas pipes and services, must respond for the loss and prevent its repetition.

Just one moment's reflection on your part and you will be amazed at the many thousands and millions invested in water and gas plants which are subject to destruction by electrical current. Some are under the impression that it requires a very strong current to destroy the mains and services of a water company, but that is entirely a mistake. Professor William Jackson states that one-thousandth of a volt pressure will cause electrolytic action, and some of the worst cases of corrosion, in Boston, have been found on iron pipes where there was only one and one-half volts between the pipe and ground. It must be kept in mind that rapid and extreme destruction depends largely upon the salts of the earth. Reports sent in show that towns where but few electric cars are run suffering as much, if not more in proportion, than the larger cities. I think this can be accounted for by there being a great many more good conductors in the large cities than in the small towns. It is well known that if the electrical current did not leave the pipe there would be no destruction. In water mains the lead and yarn in the joints causes the electricity to skip over the bell and enter the pipe on the spigot end and continue to do this until it reaches the place where it was generated. I have not seen in all my examinations any pipe that has been destroyed from within, but I believe it a possibility from the cause I have mentioned, provided, the water contains proper salts, as it does sometimes. The destructiveness in our city has not been confined to the pipe services near the street car company's power house, but it has been found miles from it where the current was not very strong.

Bonding of the rails and mains has only been successful in a few instances. This method is all wrong in principle and not justified under any circumstances. There is no good reason why any water department should furnish the street car company a means of returning to the power house the electrical current created by it. Sometimes the railroad companies bond the rails and pipes surreptitiously; and again they say, "Let us bond your mains and no harm will be done them." The heat generated by the current and the shunting of the current at the joints can not be other than injurious. A main charged with an electrical current is in an unnatural condition and is dangerous to workmen even

if there be no damage to the main. Professor L. I. Blake, of the University of Kansas, says in regard to the resistance of cast iron joints, as commonly made with oakum caulking and melted lead. "I have found the resistance of three old joints cut from 6-inch cast iron mains about 200 times that of the pipe. In twenty-five lengths of 4-inch pipe, as it lay in the trench, I found resistance of the joints 110 times that of the pipe." In the cast iron 4-inch main of a gas company in the city of Indianapolis, the spigot end of the pipe was almost entirely destroyed, while the pipe each side of the joints was destroyed in places. The pipe is complete evidence in itself that the resistance of the joints is many times that of the pipe and is damaging. Bonding the rail and the pipe can not and does not provide against its destruction. The railroad companies, by using the mains, are saved a large outlay for return wires; but does that furnish a good and sufficient reason for using the mains for the return of the current to the injury and damage of the pipes? Is there any law or equity in such proceedings? Is it not common sense equity and justice that a street car company should provide for the return of the current created by it to the power house by means provided, at its expense, for that specific purpose?

The practice of trying (or bonding, as it is miscalled) of the rails together at the joints with a large wire is simply absurd. A moment's reflection will convince any one that the conductivity of the rail is at least ten times greater than that of the wire. Therefore, if the rails will not carry the current back to the power house, how can a small wire? What can be more fallacious than the wiring of the water pipe to the rail? Every one knows that the electrical current escapes from the rail. If the rail was a perfect conductor there would be no escaping current. What benefit can possibly be obtained by wiring the pipe to the rail, which demonstrates by the current on the pipe its inability to return the current to the power house? The pouring of iron around the joints is not much better than the small wire, because there is a covering on the rails of rust and dust, which prevents perfect contact. The water departments should not make the mistake of suggesting how the railroads shall take care of the overflow currents, but demand that they do it.

From our present experience it would seem that there is no absolute remedy for these conditions known at the present time, but that the situation can be almost entirely relieved if a return wire, insulated, of sufficient size with low resistance be laid between the rails under the ground in conduits.

While I express my belief in the adequacy of the return wire, I am firmly of the opinion that the remedy should be provided by the street car company, and that no loss or damage should be sustained by any water department in the country. This remark applies to suburban lines as well as lines in cities. In the reports it is shown that in Philadelphia the suburban lines had given more trouble than the lines in the city. I do not see that there can be any justification whatever for continuing a system of transportation that is detrimental to the water mains which furnish the citizens with a necessity of life, health and cleanliness, and a protection from fires for their property. In other words, a water works is more important to a city than a street car system. Almost universally the water works are constructed before the street car lines. In our city, under the new contract, the charter or

franchise granted puts the power in the hands of the Board of Public Safety to require a remedy to be applied to prevent the destruction of the water company's property and that of the citizens. Up to the present time, the street car company in the city of Indianapolis has refused to pay the property holders for damage done to their services, and their accounts are now in the hands of attorneys to enter suit. We have advised the citizens to await our efforts before the Board of Public Safety to get the street car company to pay their bills and afford relief. The payment of claims by the street car company for damages to services of broken pipe is of too little consequence to be mentioned in connection with the destructiveness of the electrical current. No human being knows just where the damage in the system is being done, or to what extent, until a main bursts or a service gives out.

The electric current generated to propel the cars is alike in character in all cities, and if it is injurious in one city it is likely to be so in all. It obeys the same natural law in all cities, that is, to return to the point where it is generated by the route that offers the least resistance. The street car company having created the current is certainly bound in all equity and law to provide for its safe return without damage to the property of others.

New York's Bad Water.

Dr. P. Sherwood Dunn, in a letter to "The Medical Record," speaks of New York's water supply in this way:

"There is no place now within the limits of Greater New York, as near as I can learn from careful inquiry, where pure water, or anything like pure water, can be had from the public supply. The quality and quantity of the water during the past summer have been matters of serious and constant complaint, because of its utter unfitness for domestic use, either for bath, cooking, or drinking. The water department of this city has been flooded with complaints. If they were made public there would be an uprising of the citizens. During this past season the rate of infant mortality under five years of age has risen from 9.1 per cent. average for the balance of the year, to over 30 per cent.

"There were reported for the first five days of last July 112 deaths among children in New York city proper from diarrhoea alone.

"The reports of analyses made by the health department show that the albuminoid ammonia in the samples of water during this week is almost double what it was in the comparative reports of 1897 and 1898. This shows that the water is polluted by decayed vegetable matter, sewage, or other poisonous material. In addition to this cause of the bad state of the water, there is growth in the old water mains of fungus, accumulation of slime, and other things, resulting from stagnation because of the low pressure. These reports also show a minute percentage of nitrogen, the significance of which has a most vital import in the increased death rate.

"While we hear talk of and see constantly in the daily papers the projected expenditure of hundreds of millions of the public moneys for the increase of rapid transit, for the repaving of streets, and for public improvements innumerable, there is too little agitation as to the preservation of the lives of the people who are expected to enjoy these improvements, by furnishing to them an adequate and healthful supply of water."

The Water Supply of New York.

[Condensed from an article by J. James R. Croes, M. A. S. C. E., in the New York "Times."]

The present city of New York derives its water supply from a number of sources. Manhattan Island and part of the Bronx Borough are supplied from the Croton river through thirty-three miles of masonry aqueducts, capable of conveying 400,000,000 gallons a day, and delivering the water to the Bronx Borough at 131.5 feet above tide level, and to Manhattan Island at 119 feet above tide. The Bronx and Byram rivers furnish part of the Bronx Borough with 15,000,000 gallons a day, delivered at 195 feet above tide. A private corporation also pumps a small amount of water from various sources. Boroughs of Brooklyn and Queens derive their supply from surface and underground waters on Long Island, which are pumped into reservoirs. City works supply 98,000,000 gallons a day and a dozen private corporations furnish 18,000,000 gallons. The Borough of Richmond is supplied by private corporations pumping from wells.

The condition of the supply in the Manhattan and Bronx Boroughs is all that will be considered in this article.

The Croton water is delivered to the city at 119 feet above tide. This limits the practicable height at which water can be supplied to houses to about sixty-five feet above tide. Murray Hill, the west side above Fiftieth street, and part of the Bronx Borough lie above this elevation, and the water to supply them has to be pumped. There are now three pumping stations in operation, at which nearly one-fourth of the entire supply is lifted about 100 feet higher than the aqueduct. So far as pressure on the pipes is concerned, the same conditions exist in these high-service districts as in the lower-lying districts which take their supply from the reservoirs direct.

All the distribution service throughout the city, including the main pipes and the house plumbing, is understood to be planned to sustain an ordinary pressure of fifty pounds and an extreme pressure of 100 pounds per square inch without leaking. Most of these pipes would now leak under these pressures. Of the 834 miles of main pipes, half have been in the ground from twenty-five to fifty years, and are considerably deteriorated. There is no telling how many of the 600,000 joints in the mains and the 130,000 service taps are leaking all the time. Every year over 1,000 leaks in pipe joints and as many more in service pipes become so bad that they show at the surface of the ground and have to be repaired, but until they get as bad as that they go on dribbling away water into the ground and the sewers without detection. Every year about two miles of old pipes have to be taken up and renewed. The effect of a slight increase of pressure on these pipes is shown every time that such increase occurs by the number of leaks which show at the surface, and still more by the enormous quantity of water which has to be supplied, and which disappears somewhere, nobody can tell where. Thus, between 1889 and 1891, when the completion of the new aqueduct permitted a greater head of water to be turned on, the number of water takers increased about 5 per cent., but the quantity of water delivered increased from 114,000,000 to 165,000,000 gallons a day, nearly 50 per cent., and the leaks developed increased in about the same ratio. So, be-

tween 1894 and 1896, when the head of water was increased in the central part of the city by opening wider the gates at the reservoir, the increase of water delivered and of leaks developed was 15 per cent., while the pipe mileage and number of water takers had increased only 4 per cent. Then, again, between 1896 and 1898, when, according to the annual report of the chief engineer, "the increase of pressures below Thirty-eighth street by the use of the new mains on Fifth avenue developed a large number of weak places in the old mains and in the service-pipes to houses and old disused taps and services," there was an increase of 23,000,000 gallons a day in the amount of water delivered to the city. The population to which water was supplied had increased during that period less than 100,000, so that even supposing the new takers to have used 100 gallons each per day, or 10,000,000 gallons in all, there must be charged against the comparatively small district affected by the increased pressure some 13,000,000 gallons a day in addition to what they have been using before. That such an additional amount could have been used or even wasted in the buildings is preposterous to suppose. A large proportion of it must have been wasted from the continually deteriorating underground pipes.

So long as this condition of affairs exists, it would be injudicious to attempt to increase the head on the low service districts of the city, either by introducing a gravity supply under an increased head, or by pumping.

Investigation of this subject shows that when, in 1876, Allan Campbell, a civil engineer of experience in the management of large business enterprises, became Commissioner of Public Works, he found that the daily use of water per inhabitant had increased under the inexperienced management of his predecessors from 81.7 gallons per head in 1870 to 91.2 gallons in 1875. He undertook the reduction of waste, systematically and intelligently, and when, after five years of service, he retired on December 11, 1880, the consumption was seventy-seven gallons per head. His successor, Hubert O. Thompson, who, "through his former connection with the department, had intimate knowledge of Mr. Campbell's methods of administration and his plans and intentions in reference to the public works," as he himself expressed it, carried on the work of reduction of waste, until, on his retirement from office at the end of the year 1884, the average daily consumption of water per head was only 69.9 gallons. Rollin M. Squire, who succeeded him, had had no previous training in scientific or municipal affairs, and during the eighteen months that he held office the daily use of water was 73.2 gallons per head. Then General John Newton, an engineer and administrator of experience, became Commissioner of Public Works, and so conducted the work of repression of useless waste that when on May 1, 1889, the department was turned over to Thomas F. Gilroy, the daily delivery of sixty-nine gallons per head of population sufficed to fill all requirements.

In 1890 the use and waste of water had increased to 84.7 gallons per head, and under the changes of administration since that time the increase has been steady and rapid up to 124.5 gal. per head of population in 1899. The waste of water has attained such proportions that there is no question that, making every allowance for legitimate increase of use, one-third of the water distributed through the mains is not benefiting anybody.

Worse than that, this waste is imperiling the comfort and safety of the citizens by diminishing the supply of water available for future use. The run-off of the Croton river varies greatly from month to month. It has been as small as 18,000,000 gallons a day for a month at a time, and it has been as great as 1,500,000,000 gallons a day for a month.

Such irregularity of flow makes it necessary to have a large storage to enable a regular quantity per day to be drawn to the city. The reservoirs now constructed in the Croton valley hold 40,500,000,000 gallons. If next year should happen to be as dry as 1880 was, and the consumption in the city the same as now, it would require 46,500,000,000 gallons of stored water to keep up the supply. It is time to expect another very dry year, and it is not at all unlikely that next year or the year after the city will have to be put on half allowance of water for six weeks or two months, if the present rate of waste is allowed to continue.

It is of vital importance, therefore, that the excessive waste of water be lessened at once, or that an additional supply be introduced immediately—that is to say, within six months. The latter alternative is impracticable; there is no source from which more water can be procured short of three years. No investigations as to the practicability of procuring water from other sources than the Croton river have been made by the New York officials for fifteen years. Various schemes have been proposed by outside parties.

It has been proposed to bring water from lake Erie, from lake George, from the Adirondacks, from the Hudson river above Poughkeepsie, filtering it or pumping it into the Croton basin, from the Catskill mountains and Esopus creek, from the Housatonic river, or from its tributary, the Ten-Mile river; from the Ramapo river and from the headwaters of the Delaware river.

None of these projects has been critically examined by engineers to such an extent as to warrant any person of corporation, private or municipal, in investing money in them. Such examinations necessarily take a good deal of time, and in the present state of affairs time is the most important element in the matter. More water must be had at once or less must be used.

The only way to bring this about is to enter systematically on the task of repression of waste from mains and services by the methods which have been so successfully applied in other cities and to some extent in New York in former years. The waste in dwellings can be reduced greatly by close inspection, but best of all by compelling the consumer to pay for the water he uses by measure, the same as he pays for his other necessities of life. If legislation is needed for this it ought to be demanded earnestly and forcibly.

Nobody but a person who is a thief at heart can object to the checking of water stealing. There are about 100,000 taps in the city which are not metered, and in a large majority of them the use of water is not much in excess of what it should be. The great waste occurs in a comparatively small proportion of the residences and in the street mains.

The possibility of supplying an inferior quality of water for street washing, fire protection, and other uses for which pure water is not needed, also demands study and careful investigation. There is little doubt that a very considerable quantity of good water can be saved by laying a few miles of independent mains in the lower part of the city with a

pumping plant to furnish river water at high pressure for fire and sanitary uses. But first and foremost, and most of all, prompt action in the repression of useless waste is demanded.

Norfolk Water Filters Tested.

J. Jett McCormick, M. D., who was employed by the Norfolk, Va., board of water commissioners to conduct tests of the efficiency of the new mechanical water filters installed there, has submitted his report to the board. The report says:

"In compliance with your instructions, I began on October 10, 1899, the thirty-day guarantee test of the filter plant constructed by the New York Filter Company for the city of Norfolk. This test was to determine:

"1. The reduction of color, which it was guaranteed would be 90 per cent.

"2. The reduction of albuminoid ammonia in suspension, which it was guaranteed would be 90 per cent.

"3. The reduction of bacteria, the guarantee being that if there were 7,000 bacteria in the raw water to the cubic centimetre, they would be reduced 97 per cent. If there were less than 7,000 bacteria per cubic centimetre in the raw water, there would be less than 100 per cubic centimetre in the filtered water.

"The samples of raw water were taken at a point about 25 feet from where the water enters the reservoir for collection. The samples of the filtered water were taken from the flume at the north end of the filter plant, where the water flows into the brick reservoir to be pumped to the city.

"The average reduction in color of the filtered water was 93.6 per cent. The only time that it fell below 90 per cent. was on October 16, when it registered 85 per cent. This was due to the sulphate of alumina being reduced to one and one-half grains per gallon. I should state here that this plant was constructed to filter the Lake Smith and Lake Lawson waters, as it was the most sanguine expectation of your department that it would

be two years before the Little Creek water could be used. Upon the completion of the filter plant the Little Creek water was found by analysis to be available, so the guarantee test was made upon this water. The color of the Little Creek water by the platinum-cobalt standard is 99, the color of the Lake Smith water by the same standard is 30, and as the quantity of sulphate of alumina requisite is directly proportional to the intensity of the color, we have 99:30:2-1-2:x3-4. In other words, if the test had been made on Lake Smith water, only three-quarters of a grain per gallon would have been necessary. I am informed by your superintendent that the Lake Smith water was originally the color of the Little Creek water, and took two years to attain its present color. The same rule should apply to the Little Creek water.

"The method of determining albuminoid ammonia in suspension being arbitrary, I determined the total albuminoid ammonia in the raw and filtered waters and found an average reduction of 94.1 per cent., which is remarkably satisfactory. The average number of bacteria per cubic centimetre in the raw water was 356, in the filtered water 12, giving as reduction of 95.99 per cent. The cultures were made in gelatine bouillon of 15 acidity. This medium according to the best authorities, gives the maximum growth. The great increase in bacteria on November 1 and 2 was due to a heavy rain storm. The raw water on those days was very turbid. You will observe:

"1. That the guaranteed reduction in color of 90 per cent. has been exceeded, as the average reduction was 93.6 per cent., and this in spite of the fact that the test was made on a water over three times as highly colored as the one upon which the test was intended to be made.

"2. That the guaranteed reduction of albuminoid ammonia of 90 per cent. has been exceeded, as the test shows 94.1 per cent. reduction.

"3. That there was an average of 356 bacteria to the cubic centimetre in the raw water; therefore the guarantee is

that there shall be less than 100 per cubic centimetre in the filtered water. The average number per cubic centimetre in the filtered water was 12, greatly exceeding the guarantee."

Ramapo Injunctions Dissolved.

The Supreme Court, by decision of Justice Gildersleeve, has denied the applications to continue the temporary injunctions which have been restraining the Board of Public Improvements of New York city from passing upon the contract with the Ramapo Water Company.

The suits were brought by Charles E. Keator, a taxpayer, and by the Press Publishing Company, as a taxpayer. Hoadly, Lauterbach & Johnson were counsel for the Ramapo Company; Bowers & Sands appeared for the Press Publishing Company; Delos McCurdy was counsel for Keator, who brought the suit on behalf of Controller Coler.

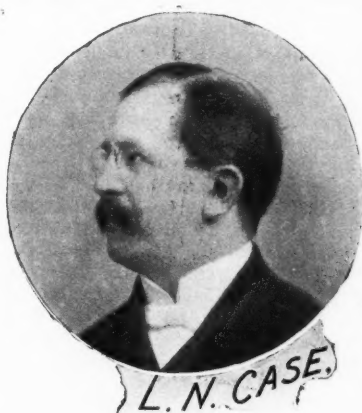
Justice Gildersleeve, in his decision in the first case, says that it appears to be conceded that neither the Municipal Assembly nor the Board of Estimate and Apportionment has yet acted upon the contract. The claim of the defendants that there has been a great scarcity of water to meet the demands of this large city is fully supported by the evidence. This is especially true of the Boroughs of Kings, Queens, and Richmond.

The justice says that this condition of things has existed for years, and that there is evidence of the defects of the present system as far back as 1883.

The decision then deals with the steps taken by Commissioner Dalton to secure an additional water supply, and the adoption on August 30, by the Board of Public Improvements, of the resolution that it was not in the public interest or necessary for the city to enter into a contract with a private corporation for its water supply. The justice says:

"The allegation that promoters and persons interested in the Ramapo Water Company and certain persons in the

(Continued on next page.)



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city of New York have confederated and conspired to cheat and defraud the city by means of the proposed contract is made upon information and belief. I am unable to find in the moving papers a particle of evidence disclosing the source of the information or grounds of belief.

"The plaintiff, if he knew, very carefully concealed the names of the persons who, he says, are promoters of and interested in the Ramapo Water Company. He is equally silent as to the names of the persons in the city of New York whom he charges with confederating and conspiring with said promoters to cheat and defraud the city. In the large volume of papers handed up there is absolutely no evidence to support this charge. The facts constituting the fraud, the acts done in pursuance of the conspiracy, and the names of the conspirators are all left to surmise and conjecture. Such a form of allegation is entirely insufficient and useless and may well be disregarded.

"Assuming that it appears in the papers before me that, had the Board of Public Improvements approved of the proposed contract, the commissioner of water supply would have executed it, no case for injunctive relief is here made out, for the reason that it is not shown that any injury to or waste of the city's assets would be imminent.

"There is no evidence to sustain the assertion that Commissioner Dalton intended to procure, or now contemplates procuring, an additional water supply otherwise than in accordance with the law.

"The allegations of the complaint that the contract is a wasteful one is not the statement of a fact. No facts are stated showing ground for apprehension of future injury. The contract is before the court, and a careful perusal shows it to be quite harmless. It is a simple option. By its terms the Ramapo Water Company is to supply water, provided the city needs it. If the city does not need the water it need not take it.

"Again, should the commissioner of water supply and the Board of Public Improvements do what this action is brought to prevent in respect to the contract, no injury to the city's estate is imminent.

"The controller's indorsement can alone give validity and effect to the contract. The controller states in his affidavit that this indorsement 'has not and will not be made upon the contract.'

"Furthermore, there is no evidence to support the claim that any of the administrative officers of the city, defendants herein, are attempting the commission of an illegal act."

Justice Gildersleeve, in denying the application of the Press Publishing Company for a continuance of the preliminary injunction obtained by that corporation, goes over the same ground as in the first case, but points out that the plaintiff claims that the attempt to grant the Ramapo Company the proposed contract "is the result of a fraudulent political combination, in violation of law and of the plaintiff's rights as a citizen and taxpayer," and that the present supply of water is adequate.

Justice Gildersleeve says: "The allegation, upon information and belief, that the proposed contract 'is the result of fraudulent political combination,' is unsupported by any averment of the source of the information, or the grounds of the belief. None of the affidavits before me contains any evidence tending to establish the truth of this allegation, and it

may, therefore, be dismissed without further comment."

The allegation of the plaintiff that it is an illegal act for the Board of Public Improvements to authorize Commissioner Dalton to execute the proposed contract before it has been approved by the Municipal Assembly is then dealt with, as is also the claim that the mayor has a veto power. The justice says he thinks this is substantially the correct view.

"My understanding of the foregoing provisions," Justice Gildersleeve says, "leads me to conclude that the administrative officers and administrative departments of the municipality of the city of New York have not the power to acquire a supply of water and furnish it to the inhabitants, without authority, conferred by previous legislative enactments for that purpose, by the Municipal Assembly."

Justice Gildersleeve says the principal grievance of the plaintiff is the alleged presumption of the Board of Public Improvements to authorize the commissioners of water supply to execute the contract, and the declared or apparent intention of Commissioner Dalton to execute the same. He deals with this question at considerable length, and says:

"It cannot be said that the execution of the contract was at any time imminent. Certainly there is no proof to support the claim that an execution of the contract is being undertaken by the defendants, without due regard to the provisions of the charter, and in violation of law. It cannot, therefore, be held that a legal fraud is attempted."

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A GOLDEN RULE GOVERNMENT.

[Full report of an address by Hon. Samuel M. Jones, Mayor of Toledo, O., before the Convention of the League of American Municipalities.]

We are living in one of the most interesting and important epochs in the world's history, thus far—an age that has witnessed more of the marvels of material development than any or all the ages that have preceded it. Steam, electricity, compressed air, liquified air, and modern inventions in labor saving machinery have increased the producing power of men 20, 50 and 100 fold beyond what was believed to be within the possibilities 100 or even fifty years ago.

Improvement has been the order in every field of human endeavor. So marked and striking have been the changes wrought by these marvelous developments that the thing we call civilization has, as it were, had its head turned, until we have well nigh lost sight of or forgotten the purpose of life itself, so bewildered have we become with the astounding "successes" (?) that a few of us have achieved in the fast life of the closing years of this nineteenth century.

We have well nigh lost sight of the thing that we call patriotism, and more nearly have we lost any conception of the deep meaning that the word ought to have. As

it stands to-day, it is simple candor to say that the word patriotism is to most people a meaningless jingle, the one conception they have of the thing being associated with red fire, bunting, flags, firecrackers and Fourth of July. The new patriotism, however, is the old patriotism. The flag, the Stars and Stripes, still represent the love of millions, but we have been so busy in the chase after wealth that any just conception of patriotism is well nigh lost in the hurly burly of the scramble.

It was Lamennais who said: "I love my family more than myself; my village more than my family; my country more than my village, and mankind more than my country." And in this saying he has shown us a just and proper conception of true patriotism; but the narrower conception of life, commonly called selfishness, has well nigh crushed out this noble ideal and has substituted in its place the brutal maxim that "self preservation is the first law of nature" (and "to the victors belong the spoils"). It is among wild beasts, but we have reached a point where we are discovering that wild beast ethics are not good enough upon which to base a permanent and enduring republic. The ethics of the wild beast, the survival of the strongest, shrewdest and the meanest have been the inspiration of our materialistic lives during the last quarter or half century. This fact in our national history has brought us to-day face to face with the inevitable result. We have a nation in which a few are wealthy, a few are in what may be called comfortable circumstances, vast numbers are propertyless, and millions are in pauperism and crime. Certainly, no reasonable person will contend that this is the goal that we have been struggling for; that the inequalities that characterize our rich and poor represent the ideals that the founders of this republic saw when they wrote that "all men are created equal." And the new patriotism is the love of the millions that is already planning for and opening the way to better things, to a condition of life under this government, when every child born in it will have equal opportunity with every other child to live the best possible kind of life that he or she can live. This is the new patriotism, that feeling within one's breast that tells us there can be no prosperity for some without there is possibility for some prosperity for all, and that there can be no peace for some without opportunity for some peace for all; that man is a social being, society is a unit, an organism, not a heap of separate grains of sand, each one struggling for its own welfare. We are all so inextricably bound together that there is no possibility of finding the individual good except in the good of all. These closing years of the century are bringing to us new light upon this subject. We are coming to see that there is a lack of social equilibrium, a lack of balance that in the struggle for so-called success we have been chasing the ignis fatuus. Noble lives by the thousands have been annually wasted in the desperate race after a bauble, and we are discovering that the thing we call "success" is indeed, after all, only a most conspicuous and glaring failure.

Somewhere in God's universe there is such a thing as social justice. Equality is as brotherhood is. It is not a fad of mere theorists or a whim of dreamers, but a fact from which there is no more possibility of escape than from the facts of arithmetic.

Daniel Webster stated this fundamental principle when he said: "Let us hold fast the great truth, that communities are responsible as well as individuals; that no government is respectable, which is not just; that without unspotted purity of public faith, without sacred public principle,

fidelity, and honor, no mere forms of government, no machinery of laws, can give dignity to political society."

I have sometimes tried to picture in my mind the condition of affairs that will prevail when we have a Golden Rule government, for that is what we are yet to see in this country of ours. It is true that if we think of the obstacles that are in the way of the realization of such a condition we will be well nigh discouraged, but if we have the cause of the people really at heart, we shall be too busy doing the things nearest at hand to let anxiety for signs of visible progress trouble us much. Certainly, we may live in hope that through the agency of the thing we call government we are yet to realize a condition of life among our people that will be less strife-filled—a condition in which the people shall have more freedom and liberty; shall at least have liberty to live the life of free men, a privilege that is to-day denied to by far the greater portion of all humanity.

The steps most likely to contribute to bringing about the better days, and better times, for which we all long, are to my mind those things that will unify the people, that will serve to weld them together in one common mass, those things that will help them to understand the oneness, or solidarity of all society; and the things that the greatest hindrance to this sort of development are all those agencies that serve to separate the people into fragments, that keep alive the fires of hatred within their bosoms and tend to make them hate rather than to love each other. All these agencies are the enemies of progress and of liberty, and stand directly athwart the path of freedom.

Chief among them, and the one agency above all others that the patriot should seek to overcome in the municipality, the state and the nation, is partisan politics.

I am sure that I cannot speak too strongly in condemnation of the superstition that we must have parties to carry on the work of government. To a certain extent, the people are quite well freed from it so far as the municipality is concerned, yet the bosses and the would-be bosses strive to keep the heresy alive in the municipality, the township and even the village, their argument being that the municipality is the base, and if an organization is allowed to disintegrate there, it will be impossible to keep it alive in the state and the nation. This argument and the superstition so commonly believed that "we must have parties" has served to keep many men in line as partisans who, when it is once shown them that this is only a cunningly devised fable calculated to deceive people in the interest of the few, will quickly step out on to the broader plain of privilege as non-partisan, and line themselves along with the element known as the "independent voter," who, for years past, have been at once the terror of the politicians and the hope of the common people. And the hope of American municipalities to-day lies in augmenting the ranks of the independent, or better, the non-partisan voter.

From this time forward we will find the noblest patriots in the ranks of those who dare to be free, who dare to own themselves, who dare to vote for principle and to ignore party. Political parties are a curse to every department of our government, municipal, state and national; the prime purpose of their existence is to capture the offices and administer every function of the government, not in the interest of the municipality, or the state, or the nation, but in the interest of the few managers of the party. It is through the evil influence of these agencies that corruption of every sort is carried into all departments of government, and held there as if by a mailed hand. The people have turned in vain from one to the other of these agencies in the vain hope of relief, only to find that the old machine always produced the same old result. The evil of the contract system that is a festering poison in so many of our municipalities is held and made secure—through its contributions to the support of the partisan idea in our politics. The dominant party in any municipality has no trouble in raising funds to carry on its campaigns and making them so exceedingly costly that a canvass for an office is such a luxury that no ordinary man can afford to undertake it. The same thing may be said of franchise grabbing. This is an iniquity that is commonly charged to corrupt politics. There can be no greater error than that the evils of our government are accounted for by corrupt politics. It is corrupt business that creeps in and poisons our political, our social, and I had almost said our spiritual life—what little we have left. John J. Chapman said on this point: "This political corruption is a mere spur and offshoot of our business corruption. We know more about it, because politics cannot be carried on wholly in the dark.

Business can. The main facts are known. Companies organize subsidiary companies to which they vote the money of the large company—cheating their stockholders. The railroad men get up small roads and sell them to the great roads which they control—cheating their stockholders. The purchasing agents of many great enterprises cheat the companies as a matter of course, not by a recognized system of commissions—like French cooks—but by stealth. So, in trade, you cannot sell goods to the retailers unless you corrupt the proper person. It is all politics. All our politics is business and our business is politics." The fact of the matter is there is little hope for improvement for progress in the direction of scientific government in our municipalities until we shall first get the people freed from the baneful superstition of partisan politics. The competitive idea at present dominant in most of our political and business life is, of course, the seed root of all the trouble. To think of eradicating this evil, of rooting out this infamy that has kept men for generations facing each other as fighters, when their normal condition is that of brothers, is a proposition that may well make stout hearts quail, but we know we are gaining ground, we know that many centuries ago the only form of government was government of the club, that when savagery prevailed the strongest man ruled; his sway was supreme, that that brutal form of government was succeeded by a form less objectionable, by the rule of autocrats and kings, that this unnatural relation among men has now very largely passed away, that to-day we are ruled to a great extent in America by commerce and industry, that we are rapidly passing to a better and kindlier and a more rational system that will be the rule of the people; coming, indeed, to the time when business will be friendship and government will be love. The common things of our common life are tending to overthrow the dynasties of the kings, of commerce and industry, as they have already overthrown the dynasties of the kings of the government. Such agencies as public parks, publicly paid for, fire and police departments, serving each and all alike; public streets, which are the common property of the common people, and above all the common school, that bulwark of our liberties; these are the fraternal forces that are unifying our life, that are bringing us together as members of one great family, having one common interest and one common destiny.

The growth of the sentiment favoring municipal socialism in the cities of America is one of the promising signs of the better day. Hundreds of thousands of dollars have been appropriated within the last few years to such humanizing and educating influences as children's play-grounds, free baths, free music in the parks for the people, and in some instances our municipalities have provided free lectures and free concerts for the winter evenings. Every movement of this kind, everything that tends to bring the people together, is educating in the right direction, tends towards liberty and the realization of that freedom and equality guaranteed by the constitution outlined in the Declaration of Independence.

The only hope of the spoilsman and corruptionist lies in keeping the people apart, in separating them, in leading them to believe that they are natural enemies and not friends, but it is gratifying to note the signs of promise that we have of the better day. There is hardly a city of any importance in America but that the subject of municipal or public ownership has had more attention and discussion during the last five years than in the twenty, yes, or fifty that preceded it.

The people are beginning to understand that we have been pursuing a policy of plundering ourselves, that in the foolish scramble to make individuals rich we have been making all poor. "For a hundred years or so," says Henry D. Lloyd, "our economic theory has been one of industrial government by the self-interest of the individual; political government by the self-interest of the individual we call anarchy." It is one of the paradoxes of public opinion that the people of America least tolerant of this theory of anarchy and political government lead in practicing it in industry. We are coming to see that the true philosophy of government is to let the individual do what the individual can do best and let the government do what the government can do best. Our cities and our republic are to be saved by the development of the collective idea. We are coming to understand that every public utility that is necessary to the public welfare should be publicly owned, publicly operated and publicly paid for. Among the properties, that according to any scientific conception of the purpose of government should so be owned, are water works, heating and lighting plants, street railways, telephones, fire alarms, tele-

graphs, parks, play-grounds, baths, public wash-houses, municipal printing establishments and many other industries, indeed, necessary to the welfare of the whole family that can only be successfully operated by the family in the interest of the whole family.

It is absurd to expect a peacefully ordered and organized community whose government is carried on according to unscientific and unjust principles. There is such a thing as social justice, a justice that is as unerring as any rule in arithmetic; a justice that will discover the exact basis for social relation between every man and every woman; and the first business of a municipality is to see that its affairs are so ordered as to make this justice accessible to the weakest as well as the strongest. When we, the city officials, come to a consideration of the questions of municipal government from this standpoint, we will begin to have a proper conception of the responsibilities that rest upon us, when we come to understand that the first business of a city is to make such conditions of life as will produce the best bodied and healthiest fathers and mothers rather than to trifle away valuable time in bartering with an unscientific and bungling contract system of labor in the hope of saving at the spigot while wasting at the bung-hole, we will begin to have a scientific conception of the purpose of government. The contract system is an infamy, pure and simple, conceived in sin and born in iniquity. It has been bolstered up by the corrupt methods that are the legitimate product and offspring of the wicked and hopeless competitive system. There is but one thing to do with that monstrosity, to bring peace and honesty into the work of municipal improvement, and that is to cut it out root and branch, to substitute in its stead the day labor plan with a stipulated minimum rate in every municipality as a living wage and eight hours to constitute a day's work. These are in brief the suggestions that have come to my mind as to the steps by which we shall give expression to the new patriotism and proceed to realize a Golden Rule government, a government in which each neighbor will give to the other every right of free thought and free movement which he demands for himself. Only thus shall we realize the community, the republic, which, with all its failings is the highest because the realest application of the spirit of human brotherhood.

"To the better, to the brighter,
On, on!
Where the human path grows lighter;
Where the love of man is ever,
Like a sunny, winding river,
Broader, deeper, fuller growing,
Onward through the nations flowing,
'Til it links the world together,
And the peoples are as one,
On, on!"

GARBAGE CREMATION AT RICHMOND IND.

[Paper read by Councilman D. P. Whelan, of Richmond, Ind., before the Convention of the League of American Municipalities.]

The cremator or garbage destructor at Richmond, Ind., has been in operation since June 7th, 1896, and we speak with assurance when we state that the service is excellent. To return to the primitive method of hauling garbage to the country would be to turn back the hands on the sanitary dial. As a rule the contract system of garbage removal is unsatisfactory in many respects. As frequent inquiries from other cities are received concerning our method of disposing of city waste, I submit the following:

Total cost of buildings, grounds and furnace, all ready for starting, \$8,339.87. The cremator is 23 feet long, between the walls; nine feet high, four feet six inches wide. Outside walls of brick; inside walls of fire clay brick, with six-inch air space between the walls. There are four feeding holes, one large enough to receive the carcass of a horse. The garbage falls upon traverse grate bars, in the upper or main combustion chamber. The bars are made of interlocked fire-clay moulded blocks, keyed together, with space through which ashes fall into the pit below. There are three fires—one at the stack end of the furnace, the fire passing over the garbage; one at the center passage, both under and over, and a third at the opposite end, completing the process of combustion, which is perfect. The stack is sixty feet high, and an average of thirty inches in diameter. The covering house is commodious and light, with doors at each end, permitting the passage of wagons over the furnace.

No accumulation of garbage is permitted, and the premises are kept in a sanitary condition.

The combustion is so perfect that no odors are observable. The ashes, rich in phosphates, have a commercial value. Night soil can be consumed at the rate of twelve barrels per day, in connection with the garbage. Originally, crude oil was used as a fuel, but, proving too expensive, resort was had to natural gas, which gave satisfaction until the supply was cut off, when coal was substituted and is still the fuel used. The plant is located within two blocks of the court house, near the center of the city, making short hauls. Formerly, as done in most cities, the garbage was hauled to the country, to be fed to swine, which, when fed upon city slop, are prone to many diseases which might be avoided. Trash from streets and alleys was deposited upon dumps, where it was left to decompose, filling the air with offensive and noxious odors, a fruitful source of discomfort and disease. No estimate can be made of germs of disease destroyed by the operation of the furnace in the 6,947 cubic yards of city waste consumed since May of this year. From a strictly sanitary point of view in cremation lies the only real safety.

The superintendent of the crematory, William Dunham, reports having burned during the nine months the furnace was in operation (it having been closed from December to March, 1899) 3,870 yards of dry garbage and 3,077 yards of wet garbage, a total of 6,947 yards, at a total cost of \$1,379.81, or nineteen cents per yard. This includes salaries and fuel. The city employs three men with teams, at \$2.25 each per day, to gather garbage and haul it to the crematory. The contract system of gathering garbage has always proved a failure; the present method of collection by the city results in the work being well done, and the few complaints of neglect are promptly met.

When the present tanks are no longer fit for use, I would recommend steel tanks, made especially for the purpose; they are more sanitary and durable. Hereafter all collections of house refuse will be kept in separate receptacles, the combustible being taken to the crematory, and the non-combustible, such as tin, crockery, glass, etc., hauled to the dump. Richmond has long enjoyed the reputation of being one of the cleanest of cities, and with the proposed effort to abolish the paper nuisance, its appearance will be rendered still more attractive.

On every hand we observe a lack of appreciation of sanitary service. The plausible caller at the front door of a residence, after a few words of pleasant greeting, compliments his hostess on her personal appearance, the tasteful arrangement of bric-a-brac and the elegance of her surroundings. At once her face lights up with appreciative smiles, but should the house to house sanitary inspector chance to call at the rear door of the same mansion and intimate that her's was not an immaculate style of housekeeping, and meekly suggest a better way of disposing of kitchen waste, I fancy the hitherto sunlit face would, in a twinkling, be suggestive of a gathering storm. An early retreat of the inspector would avert being deluged with a torrent of impromptu rhetoric, and yet the caller at the front door dwelt in valueless pleasantries while the caller at the rear was on a mission of mercy.

Neither is the sanitarian seeking glory. I may illustrate: The railroad engineer, always on the alert, discovers the creeping babe upon the track; he springs to the footboard and reaching down snatches the innocent from certain death; he is a hero. The courageous fireman, regardless of personal safety, rushes through blinding smoke, and emerges from a burning building bearing in his arms the unconscious form of a woman; he is lionized, and it is right. A Hobson risking his life in placing a barrier to the outgoing Spanish fleet, in order to save bombardment and human life, is not simply borne upon the shoulders of his admirers, but is actually kissed across the continent. 'Tis sweet to be thus remembered, yet the unassuming sanitarian, by his foresight and preventive measures, not only saves one but a thousand infants from disease and death. Also as many dependent women, not from fire, but from the more cruel, slow combustion of fatal fever, and a like number of men, not from the effects of gunshot wounds, but from the more deadly germs.

Where hundreds fall in battle, thousands succumb to the ravages of disease. The work of the sanitarian is to catch flies and muzzie mosquitoes, and rob malaria of its insidious poison in military camps, to scent the deadly plague afar off, and erect an impassable wall of quarantine, to purify the water supplies and turn the eagle eye of the laboratory upon the food of the nation,

to teach the people hygiene or how to live or how not to die, until in the fullness of time the aged lie down to pleasant dreams, and the sleep that knows no waking. All this and more is the work of the sanitarian. His reward is, as measured by the public, to be jocosely termed a microbe chaser, an aseptic crank, and his two-line obituary implies that another harmless lunatic has been gathered to his fathers. No; the reward of the sanitarian lies not in pecuniary gain, neither in public praise, but in the consciousness of having added years to the average of human life, that he has averted the calamitous epidemic, which, like the tornado, leaves devastation in its track, that moans and tears, and desolate lives which would have followed the harvest of death have, by his efforts, been transformed into life and joy and happy homes. Instead of the groans of distress are heard the sounds of mirth and the laughter of the children. This is his reward and this alone he seeks.

GARBAGE DISPOSAL AT BUFFALO.

[Remarks of M. M. Drake, Commissioner of Public Works, Buffalo, N. Y., at the Convention of the League of American Municipalities.]

Mr. Chairman, Ladies and Gentlemen:

There was a precedent established for this course back in the past, which is mentioned in Bible history; but unlike the distinguished gentleman mentioned in the Bible, it is not because Mr. Diehl can not speak that I am asked to speak for him. This is a subject that hardly invites oratorical powers; besides he has charged me to confine myself to a plain statement of facts, as the oratory should properly be confined to the mayors present in this assembly. I will, therefore, give you a detailed history of the collection and disposal of garbage as practiced in the city of Buffalo. Along in the eighties a crematory was constructed and has been operated since that time on the Merz system. We signed a contract for a period of five years, but the first company that operated it did not prove a success; that is to say, they were successful in the reduction of the garbage, but they did not make a success of the financial part of it and were obliged to reorganize. However, there was very little interruption in the work of caring for the garbage. The collection of the garbage—and it included the ashes and kitchen refuse—was done by contract. The first contract proved disastrous to the party undertaking it, and it finally resulted in the city relieving him of the contract. At the end of the first five years the city of Buffalo renewed the contract for the reduction, but undertook the collection by municipal labor. This part of it proved fairly satisfactory, except as to the expense. It was felt by the legislative body that it was costing the city of Buffalo too much for the collection of garbage. There was no criticism as to the manner in which the work was done, as very few complaints found their way to the board of public works; but it was a question of expense, and it was thought if specifications were carefully drawn, and bids invited, that a large amount of money could be saved. It was decided a little over three years ago that that was the proper solution of the excessive cost. The board of public works did not share in that feeling. They thought it was a dangerous innovation, as the work was being done in a satisfactory manner, and that much risk would be run in changing the system. However, specifications were prepared, bids received, and the contract awarded,

based upon measurements of the ashes and kitchen refuse, and weight so far as the garbage was concerned. The city had been divided into eight districts for the better pursuance of the work. These districts were carefully supervised by a foreman and an assistant foreman. They were under direct charge of the bureau of streets. The bids were received and the contract finally awarded, and upon the face of it you would imagine that the city of Buffalo would save money by the operation. What was the result? The amount of garbage collected immediately increased alarmingly. There was no possible way of accounting for it. We had our inspectors carefully watch the weight, follow the wagons, and take every means to detect the cause, but we could detect no fraud and yet the amount kept increasing. It was just the same with the ashes and kitchen refuse. The specifications called for the removal of branches of trees and everything in the way of such articles, except ashes and cinders from manufacturing establishments—and, by the way, it required all the watchfulness that the city officials possessed to keep them from hauling the ashes and cinders from the manufacturing establishments, because it swelled their receipts. The contract expired in July last. The board of public works took the matter in hand and in framing their specifications they asked for bids based upon a lump sum. In the meantime, under the system of measurements and weights, the cost had reached something like \$160,000 for the collection of the ashes and garbage and the hauling to the reduction works. We asked for bids, both by weights and measures, and by lump sum, by districts and for the whole city, with the privilege of selecting either method that appeared to the board to be the most economical for the city of Buffalo. Bids were received, and much to our surprise, the aggregate amount, based upon the lowest bid, the most economical, was only about \$80,000 a year, where we had been paying \$160,000 a year, and the bids were from the identical contractors who had been doing the work all these years. Of course, we did not tarry long discussing the subject, but we immediately proceeded to get reliable bonds from the bidders and entered into a contract, and we are now enjoying the benefit of that contract. Regarding the reduction of the garbage—the city of Buffalo had been paying at the rate of \$35,000 a year for the reduction of the garbage at the reduction works, after delivering the garbage to them. When the five-year contract expired specifications were framed and bids advertised for and received. The reduction works that had been enjoying the contract for \$35,000 a year put in a bid for \$45,000 a year, on account of the extraordinary growth of the city of Buffalo. You have all heard of it—we hug that statement to our hearts right along, day in and day out, and whenever we want an increase of expenditures in the municipal government we say, "See how the city has grown, and how much larger it is this year than last," and in this way we quiet our consciences. The contract was to extend over a period of five years. There were three bids, however, the lowest of which was \$15,000 a year. Of course, immediately there was a hue and cry that the work could not be done in a sanitary manner for \$15,000 a year—it was out of the question. It was said that it was very dangerous for the board of public works to think of getting that work done for \$15,000, when the reduction works had been paid \$35,000 a year for the past five years, and

had not made a cent at that. That was their hue and cry. They employed the best legal talent there was in the city of Buffalo, and I will give them credit for great shrewdness, for they employed some of those who were very close to His Honor, the Mayor, and whom they expected would have a certain influence upon his judgment. They were certain that it could not be done for \$15,000 a year, and that was the song they sang for four or five weeks, and I think they succeeded in impressing the legislative body thoroughly that the work could not be done for that amount of money. The lower house, almost to a man, was in favor of awarding the contract to the highest bidder, because, they said, the other bidders were all unknown quantities, who knew nothing about the business and could not do the work to the satisfaction of the municipality and that the health of the community would be endangered. They sent for Colonel Waring to come to Buffalo and intercede for them; but to the credit of Colonel Waring, whom I had known very well, he had but very little to say when he looked over the situation and he returned to New York. The contract was let to the lowest bidder. Action was taken after weeks and weeks of delay. I think the matter would have been delayed until now, if His Honor, the Mayor, had not intimated in no unmistakable way that they must do something and do it in that direction. The contract was let to the lowest bidder, and within three days after we signed the contract the highest bidder, the reduction works, came in with the successful contractor and asked the board to consent to a transfer of that contract to the reduction works. Of course we hesitated. We were opposed to that company sacrificing \$30,000 a year. It did not look right to us, but finally, after persuasion, and in view of the fact that we knew they were ready to pay the lowest bidder for the transfer, we consented, and to-day they are reducing the garbage to the satisfaction of all concerned for \$15,000 a year, which formerly cost \$35,000, and for which they wanted \$45,000 a year. Now you see that the comparisons made by the gentleman who preceded me, as to the relative cost of Buffalo and Kansas City, should be revised.

It is difficult to compare figures on the cost of the collection of garbage and its reduction, because the conditions are so very different. No two cities are alike. The work in Buffalo has been done, I believe, to the satisfaction of all her citizens. The collections in the business portions of the city, where the hotels and large boarding houses are located, are made at night, and every night in the week except Sunday. I call your attention to the fact that we do observe the Sabbath so far as the collection of garbage is concerned. In the balance of the territory collections are made twice each week, from May to October, and once each week beginning November 1st to April 30th. The process used by the Merz system, we claim, is sanitary. We do not know from our own experience that it is more sanitary than other systems that have been adopted in other cities, but we feel safe in saying that it is an absolutely sanitary system so far as the city of Buffalo is concerned. We have had very few complaints from those who live in the vicinity of the reduction works. I believe since I have been a member of the board of public works that the only complaint we received from the vicinity was on account of some local grievance, some man who

had lost a situation in the works and felt aggrieved thereby and made a complaint. Then we have the testimony of the death rate of our city in this matter. You will pardon me for reading these statistics, inasmuch as His Honor, the Mayor, stated in substance what they were, but I give them to you in detail so that you will see how greatly the death rate has diminished. In 1891 the death rate was 23.43 for each one thousand inhabitants; in 1892 it was reduced to 19.98; in 1893, 19.03; in 1894, 16.76; 1895, 13.95; 1896, 12.72; 1897, 12.42; 1898, 12.25. You can see, with that same ratio of progress, that it is only a question of a few years when no one will die in the city of Buffalo. We do not claim that the very low percentage of deaths is due entirely to the excellent manner in which this work is performed, as asphalted streets, clean streets and alleys, the strict enforcement of health ordinances and an abundant use of pure water have assisted in bringing about this desirable condition, but we do claim that it is not the least factor in producing the results. The work is not accomplished without a constant surveillance of and urging upon the householders the necessity of complying with the ordinances which require them to use a certain kind of receptacle and to keep the garbage entirely free from other refuse. In spite of the utmost watchfulness, tin pans, paper and other objectionable articles find their way to the reduction works. These are all destroyed or disinfected by the use of the most efficient material for this purpose. The system of disinfection is also carried to the household receptacles and also to the iron box wagons with which the garbage is collected and transferred to the works. We have even gone so far now as to compel the use of carts with rubber tired wheels to prevent annoyance to sleepers in the early morning in the districts where night collections are made. The city of Syracuse would not need these, because they are used to the rumbling of steam cars through principal streets and it would not make any difference to them. The contract for the collection of garbage is now merged in with the collection of ashes and other kitchen refuse, being a lump sum, and for this reason I am not able to give you the exact cost of the collection of the garbage alone. During the last contract it was \$1.97 per ton. I think the table given by the preceding speaker was \$1.95. The average haul was 4 1-3 miles. The number of houses from which collections are made approximates 40,000, and the territory covered is something like forty square miles. You who have visited Buffalo know what a large territory is covered by the city, and of course that adds materially to the cost of doing this work. There may be, and doubtless are, other methods equal to our own; possibly some that are superior. We do not hold it up as the ideal method, but it is the best that we know anything about. I have looked considerably into the question of the burning of garbage and kitchen refuse. I went to San Francisco and spent days in watching the process of destroying it by the Thatcher incinerator. I became well acquainted with the engineer who constructed it, Mr. Thatcher, and at my solicitation—that was during the pendency of our last contract with the reduction works—he came to Buffalo and looked over the ground. When we received our bids he said to me: "Well, if you can afford to accept that lowest bid, that settles it; I can not supply you with any incinerator that will compare with that expense." Taking the cost of reduction into consideration, as

our present contract provides, from my own observation, I do not believe that there is any other system to-day that has been thoroughly tried that will compare with it. We are told that there is eleven and a fraction cubic feet of first class illuminating gas in every pound of garbage. It may be true. I am not here to contradict it. I do not know anything about it, but should like to be convinced of that fact. If that is the case, and the process of securing that illuminating gas from the pound of garbage is not too expensive, then perhaps that will settle the question and solve the problem of how best to take care of the garbage. It is a very interesting question, and one that I am glad to see interests those who are present here. I think it is a profitable thing to discuss and to follow up by tests. I believe that this experiment of extracting gas from garbage is to be tried very shortly. I think they have works already constructed in San Francisco, and that they are also about ready to commence operations in some town in the state of New Jersey. I do not recall the city now. I presume there are those present who know all about it.

First Automobile Police Patrol Wagon.

The city of Akron, Ohio, is entitled to the credit for installing the first automobile police patrol wagon. It was built under the supervision of Mr. F. F. Loomis, mechanical and electrical engineer of the fire department, at an expense of about \$2,200. Much of the work was done by Mr. Loomis personally, and the perfection of the outfit is due entirely to his skill and originality.

The wagon is of the largest size used in the patrol service, having a seating capacity of twenty persons. On its maiden trip it carried that many people, up hill and down, at a high and a low rate of speed, turning corners with the greatest ease, and making the entire trip without a hitch or a mishap. Its controlling and steering gear, break and motive power, behaved perfectly and the trial gave the utmost satisfaction.

Mr. Loomis is also the inventor of a telegraph system for use in the fire and police departments.

LAKE SHORE ROUTE.

No more beautiful scenery of its class abounds than may be seen along the great double track route from Buffalo to Chicago. From the road bed up, including the superb equipment, courteous attention and service, everything known to Yankee genius, that money could buy has quickly been acquired by this road to add to the comfort and lessen the inconvenience of the traveling public. All information will be cheerfully furnished on application to the Lake Shore Railway, Cleveland, O.

—A company of Birmingham and Tusculumbia men have begun the survey for a new water works and electric light plant at Tusculumbia, Ala.

—Patrick A. Collins, former consul general to London, has been nominated by the democrats for mayor of Boston. As a scholar and orator Mr. Collins has an international reputation.

—The Continental Filter Company has been awarded the contract for installing a filter plant at Stamford, N. Y., for the Stamford Water Works Company, to purify the water supply of the town.

THE CITY'S POWER TO INCUR INDEBTEDNESS.

[A paper read at the meeting of the National Municipal League, Columbus, O., Nov. 15-17, by Hon. Bird S. Coler, Comptroller New York City.]

The effect of constitutional limitations upon the debt incurring capacity of cities has recently been a matter of extreme practical importance to the city of New York. None of the municipal corporations which were consolidated by the Greater New York charter into the city of New York, as now constituted, had exceeded its constitutional limit of indebtedness at the time of consolidation. Nevertheless, the effect of consolidation was to create a new city, the indebtedness of which considerably exceeded the limitation in the constitution of the State of New York, of 10 per cent. of the value of its real estate as assessed for purposes of taxation. The reason for this was that the limitation in question applied separately to the indebtedness of the counties included within the territorial limits of the city of New York, and to the municipal corporations included within the same. For example, at the date of consolidation, the city of Brooklyn had a debt practically equal to the maximum permitted by the constitution, whereas, the county of Kings, which was territorially identical therewith, had also a debt of nearly \$15,000,000. The Greater New York charter made all indebtedness, including the county debts, a part of the common debt of the city of New York, so that the effect of the annexation of Kings county and the city of Brooklyn to the city of New York, was to reduce the debt incurring capacity of the new city by nearly \$15,000,000. The same results were also obtained in a less degree from the annexation of the counties of Queens and Richmond.

I do not mean to dwell upon the debt limit difficulties which beset the financial administration of the new city of New York during the first eighteen months of its existence. We were theoretically, though not, of course, practically bankrupt. The city had exhausted its credit within constitutional limitations, and could only continue in business on a system of cash payments. These difficulties have now been surmounted, first by a large increase in the assessed valuation of real estate, principally in the limits of the old city of New York, and secondly, by the adoption, at the recent election, of a constitutional amendment eliminating the county indebtedness of the four counties of New York, Kings, Queens and Richmond from computation in ascertaining the debt limit of the city.

One effect of these difficulties has been to make the general public quite familiar with this constitutional provision, and to excite an amount of public discussion in regard to its merits and demerits, which would not otherwise have been possible.

Advocates of consolidation had written many eloquent articles describing the great possibilities for modernizing and improving the city of New York, so that it might become foremost among the imperial cities of the world. It was found, however, that consolidation, with its enormously increased public duties and responsibilities, instead of carrying with it an increase in the power to issue bonds to meet these responsibilities, actually brought about a diminution of that power. I hope that this reference to the increased public duties and responsibilities resulting from consolidation will not

be regarded as mere phrase-making. This change in conditions is a real one and vital, as a single illustration will show.

Prior to consolidation the building of a sufficient number of bridges across the East river was regarded as a pleasant dream, belonging, as a great English novelist has said, "to the avenue of wishes leading to the golden mists beyond imagination." To-day how different are the conditions! If Greater New York is to be one city in fact as well as in name, intercommunication between its several boroughs must be made as easy as physical conditions will permit, almost regardless of cost. If consolidation had really any sensible meaning or purpose, that purpose was the upbuilding of a city of homes at more equal distances from the centre of commercial activity. Prior to consolidation these bridges were but dreams, because the taxpayers of Manhattan Island would not build them, and the communities on the other side of the East river could not. To refuse to build them now would be to declare that consolidation has failed of its primary and most important practical object. Yet the cost of these bridges is enormous. Including the land necessary for approaches, twelve millions of dollars each is a moderate estimate of their average cost.

The demands made to-day upon the public purse for public improvements in the great modern cities of the world would astound the publicists of past generations. The ever increasing cost and complexity of urban life is nowhere better exemplified than in the demand for increased assumption of public utilities by government. A city that does not respond to this demand is provincial—is not a metropolis. Paris has been regarded as the typical modern city. It certainly was the first to make widely extended use of its credit for public improvements. And this fact has, by most observers, been cited with approval and as a cause of its greatness.

How does the bonded debt of the city of Paris compare with that of New York? The present net funded debt of the city of New York is \$253,000,000; the bonded debt of Paris is in round figures two billions of francs, or, say, \$400,000,000. Yet New York of to-day is incomparably the richer city, and better able to sustain the larger debt.

In the argument I am about to make for a more liberal policy affecting a city's power to issue bonds, I wish to state clearly my appreciation of, and adherence to the wisdom of constitutional restrictions on the indebtedness of cities. These restrictions are to be found in the constitutions of nearly all our states, and have been upheld both in letter and in spirit by the decisions of our courts. They have undoubtedly served to prevent the financial ruin of many small cities, which in the hands of unscrupulous political adventurers would otherwise have undergone the same disastrous experiences as befell the city of Elizabeth in days gone by. Yet this constitutional limitation has itself its limitations. It should not be made a fetich to be worshipped blindly at the expense of really necessary progress.

In the competition which exists to-day between nations and cities, as well as between individuals, to stand still means to retrograde, and if it should happen that a choice must be made between stopping the modernization of New York and amending the constitution, I am in favor of the latter course, provided no real

danger to the city's credit and solvency be thereby threatened.

I believe this clause in the constitution—wholly admirable at the time it was written—is not altogether adapted to modern requirements in that it does not discriminate sufficiently between two classes of city debts of a wholly different character.

A city issues bonds only for permanent improvements, the benefits of which inure to posterity. But there are two classes of these improvements, easily distinguishable from one another, and between which a sharp distinction should be drawn.

In one of these classes are improvements which, while adding to the attractiveness, beauty and healthfulness of a city, to its economical administration, or to the better conduct of its governmental functions, brings in no direct financial returns. This is by far the more numerous class and includes such ordinary works as the erection of public buildings, including schools, the acquisition of parks and the paving of streets. No matter how great the material benefits may be that are derived from such improvements, the expense incurred is unquestionably a financial burden upon the taxpayers. In regard to such expenditures there can be no doubt as to the wisdom of establishing an arbitrary constitutional limit; since otherwise the burdens that might be thrown upon succeeding generations by excessive issues of bonds would become intolerable.

There is another class of improvements, however, far less commonly met with, which either result in casting no burdens whatever upon the taxpayers, or else bring in an actual profit to the municipality. In such cases it may be permissible to ask—Wherein there lies any rational excuse for limiting the governmental activities of a city by constitutional restrictions? A dim recognition of this truth seems already to have found expression in state constitutions, which specifically except from the operation of this limitation, bonds issued to provide for the supply of water, and require only that a special sinking fund be established for their ultimate redemption. Why this exception? Because pure water is a prime necessity for the health of a community? Scarcely, for there are many other public necessities paid for by the issue of bonds which are hardly less imperatively needed by the people; and so to such these constitutions are silent. The reason must be found in the fact that, for the past century, that by universal custom which has the force of unquestioned law, it has been the practice of cities owning water works to charge customers for the water supplied, and that the rentals received from the operation of this natural monopoly have almost invariably shown a profit over the expense of maintenance and operation. In other words, bonds issued to provide for the supply of water are not a real burden upon the taxpayers, since the water rents received pay the interest on these bonds, amortize the principal, and still yield a profit to the city.

If, as I believe, this principle is absolutely sound, there is no reason why in these days of highly developed municipal functions it should be limited to the matter of water supply, simply because generations ago that constituted the only form of municipal ownership known to our forefathers. I will not try to wander too far into the seductive field of municipal ownership; but there are two illustrations of the principle I have just al-

luded to which, in the city of New York, are practical questions of the day. I refer to the construction of the rapid Transit railroad and the proper development of our dock system.

As you may be aware, the proposed contract for the construction of the rapid transit road provides for its completion by the contracting company for a specified sum to be named in the bid. This sum is to be paid by the city to the contractor from time to time, as the work progresses, by the issue of bonds. The same contracting company is bound by the terms of the contract, and under heavy bonds, to operate the road for a term of fifty years, paying to the city as rental, the annual interest on the bonds issued and 1 per cent. additional for the purpose of establishing a sinking fund for the liquidation of the bonds at the expiration of the lease. Thereafter the road becomes the unincumbered property of the city.

A more advantageous contract can scarcely be imagined. Here is a case where the bonds issued by the city are in no real, practical sense a debt at all. There is absolutely no burden thrown upon the taxpayers; on the contrary, the city will ultimately acquire without cost an asset of inestimable value. Why should the constitution hinder the city from entering into enterprises of this character?

The question of the development of our dock system is in the opinion of many even more important than the construction of the rapid transit railroad. No one who is impartial, and has really studied the matter, can seriously deny that the municipalization of the New York city docks, tardily and insufficiently as it has been carried on, has been advantageous to the city. No city in the world is circumstanced similarly to New York in respect to its water front privileges. But the acquisition of dock property by the city has proceeded at a snail's pace. In the fierce commercial competition which exists to-day between the great ports on the Atlantic coast of this country New York has been badly handicapped by lack of wharfage room and transportation facilities incidental thereto. So grave has the situation become that a state commission has been created to examine into the cause of and remedies for the decline in the commerce of this port. A danger of this kind defies exaggeration. All else we might lose, but the loss of our commercial primacy spells disaster. If this threatened disaster is to be averted, the acquisition, improvement and control of dock property by the city should be made a matter of public agitation and entered into at once in a vigorous, comprehensive manner. Excellent plans have been devised for improving the water front of the city, for constructing docks equal to those of Liverpool, and for providing proper means for transportation and transshipment along the lines of the city's marginal streets. But, thus far, the cost has proved prohibitive. Prohibitive, however, only for one reason—the obstruction of the constitution. If it can be shown—and it can be—that the money expended for these dock improvements would not prove a real debt, burdensome to the taxpayers, but rather an advance or loan made by the city and certain to be repaid, principal and interest, within the life-time of this generation, with an enormous profit beside, who would be such a slave to conservatism as to dispute the wisdom of

amending the constitution so as to make this great improvement possible?

Our people do not properly realize the profits which the city derives from its docks. The bonds issued by the city in recent years to pay for the acquisition and improvement of dock property have borne an average interest charge of about 3 1-4 per cent. per annum. Up to 1895 the dock department had spent the sum of \$6,508,291.50 in acquiring and improving private property, from which the rentals received amounted to \$462,226.54, or 7.1 per cent. per annum on the total outlay. This would represent a profit over the interest charge on such bonds of more than a quarter of a million dollars per annum, or sufficient to redeem the principal of the bonds in less than twenty years, notwithstanding the fact that the outlay referred to includes the large expense of widening and paving West street.

Since 1895 the dock department has conducted important condemnation proceedings in the vicinity of Bank and Bethune streets on the North river, to provide piers of extraordinary length for the use of the large trans-Atlantic steamship lines. Owing to the peculiar topography and development of this locality, the cost of these proceedings was greater than any heretofore attempted, or likely to be undertaken in the future. The blocks of ground condemned were covered by large factories with extensive fixtures and machinery, which had to be paid for by the city and then torn down

and removed. Afterwards the ground upon which these buildings stood had to be dredged out to a sufficient depth for the ships, which was a heavy expense not ordinarily incurred. This was followed by the construction of a masonry bulkhead-wall and the erection of piers. The total outlay connected with this improvement was \$7,536,841.60, upon which the annual interest charge is \$244,947.35. The rentals received amount to \$370,206.52, which shows an annual profit of \$125,259.17.

Ordinarily the city does not have to acquire the upland property abutting on the water front, so that this improvement makes the least favorable financial showing for the dock department that could be exhibited. Nevertheless, the annual profit is sufficient to redeem the bonds issued in thirty-five years, at the end of which time the city will be probably \$10,000,000 richer by the operation.

To adhere slavishly to the fetish of a constitutional provision in the light of such a showing as this is to shut the door of fate in the face of our city's future. If New York city is to occupy the position of commercial supremacy to which its past history and its natural advantages entitle it, we must reason about these matters like intelligent adults, and not like children still enmeshed in the prejudices of early teaching.

Our constitution should be amended so as to except from the limitation on the indebtedness of cities, bonds issued to provide for improvements, which, while

(Continued on next page.)

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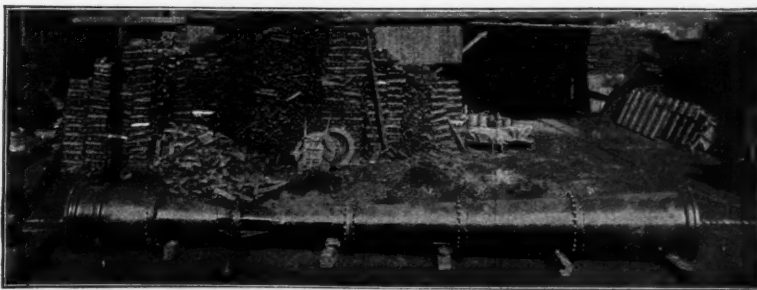
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governmental in their character, are, nevertheless, essentially business enterprises, and from the operation of which profits can be derived sufficient to provide a speedy amortization of the indebtedness temporarily incurred.

To some, it may seem that one holding the public office I do, which has always been associated in the public mind with ideas of conservatism in dealing with the finances of the city, should not advocate a proposition looking towards a large increase in the municipal debt. But if I have failed to show that the increases I favor is not in any practical sense a real debt; that the issue of bonds for the purpose I have described imposes no added burdens upon the taxpayers; and that for this reason the principle of the constitutional limitation has no application—if I have failed to show these things, I am still convinced that the cause of the failure lies in my inadequate presentation rather than in a lack of merit in the plan itself.

The Quick as a Wink Hose Couplings.

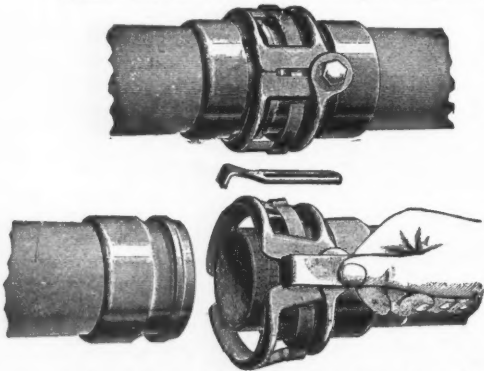
The Salem Daily News, August 15, 1899, in speaking of the 'Quick as a Wink' hose coupling manufactured in that city by the W. J. Clark Company, said:

"An interesting and amusing contest to show the difference in time and number of men required to make connections with the 'Quick as a Wink' hose couplings as compared with screw couplings.

At the recent annual meeting of the Association of Volunteer Firemen of North-eastern Ohio, five firemen with two sections of screw coupled hose and a play pipe were placed, one at the hydrant, two where the hose was to be coupled together and two where the play pipe was to be put on, the hose and play pipe lying disconnected where the men stood.

Their competitor, one man only, with another line of hose, having the same connections to make by means of the 'Quick as a Wink' couplings stood at his hydrant.

At the word 'go,' all began, the 'Quick as a Wink' man connected first with the hydrant, walked or rather jumped six feet to where his hose was to be coupled together



and again a similar distance to where his play pipe was to be put on.

The 'Quick as a Wink' man finished his three connections from three to seven seconds sooner than the five screw coupling men finished theirs, though they had no jumping to do.

Several trials were had, the time varying as above in favor of the 'Quick as a Wink' every time.

The accompanying cuts will give a fair idea of the simplicity of construction.

Many of the large cities and not a few of the smaller ones recognize the advantages of this up-to-date coupling and are making the changes in their departments as rapidly as possible.

The superiority of this new style of couplings over the common screw couplings has been often demonstrated in cities and towns where they have been in use, during the last four years. Everybody knows that fire, if it is not stopped in its early stages, has a way of 'getting on' until it can laugh at all efforts to check it while there is material to feed on; hence the importance of providing the most convenient, quick acting and efficient fire fighting apparatus.

Connections can be made and broken when these couplings are used in less than one-quarter of the time required to do it with screw couplings.

Fire hydrants are now to be had, made

especially to receive these "Quick as Wink" couplings. A hose cart with 500 or 1,000 feet of hose need not stop to uncouple when only a few sections of hose are needed to reach from a hydrant to a fire, for the uncoupling can be done while the cart is still on the run to go and lay a line of hose from another hydrant, and there is no tedious screwing to be done at either end of a line of hose, but a reliable connection is made by two motions—a push to connect with the hydrant, and a push to connect the play pipe, then one stream is on the fire and another can be on before screw-coupled hose could be gotten ready to allow the hydrant to be opened. Another advantage is afforded by this improved coupling—when a section of hose bursts it can be uncoupled and taken out of the line and another section coupled in, in less than a quarter of the time required when screws are used. Still another thing may be mentioned as an improvement of considerable value, these

(Continued on next page.)

BARGAIN FOR POLICE DEPARTMENT.

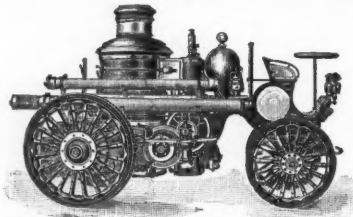
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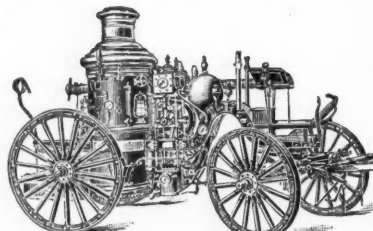
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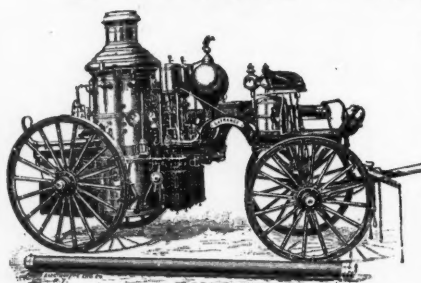
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couplings will swivel on themselves when coupled, whether under water pressure or not, thereby saving the necessity for uncoupling when there are twists or kinks in the hose. Send to the W. J. Clark Company for their hose coupling catalogue, which is free. Town councils contracting for new water works should investigate and decide as to what couplings shall be used on fire hose, before letting a contract for fire hydrants, so that if the improved coupling is adopted the hydrants may be of the kind best calculated for them. Such hydrants can be had at the same cost as those made to receive screw couplings.

Massachusetts Mayors Elected.

At the municipal elections on December 5, the following mayors of Massachusetts cities were elected:

Brockton—Charles H. Coulter, dem. socialist.

Fall River—Dr. John H. Abbott, rep.

Fitchburg—Samuel Anderson, cit., re-elected.

Gloucester—George E. Merchant, rep.

Haverhill—John C. Chase, dem. socialist, re-elected.

Lawrence—James F. Leonard, dem.

Malden—Charles L. Dean, rep., re-elected.

Marlboro—E. J. Plunkett, dem., re-elected.

New Bedford—Charles S. Ashley, ind. cit., re-elected.

Northampton—John L. Mather, rep. re-elected.

Pittsfield—H. S. Russell, rep.

Quincy—John O. Hall, rep.

Springfield—William P. Hayes, dem.

Taunton—Arthur M. Alger, rep.

Waltham—George L. Mayberry, rep., re-elected.

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Chief Aungst is comparatively a young man, but has not a little inventive genius and is sure to make a name for himself in the fire fighting field. Full particulars, no doubt, will be cheerfully supplied by addressing him at his home, Alliance, Ohio.

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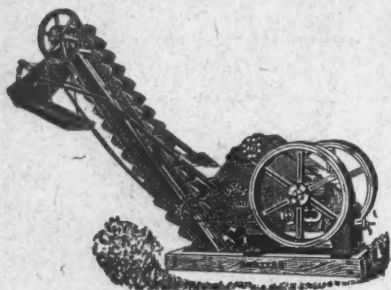
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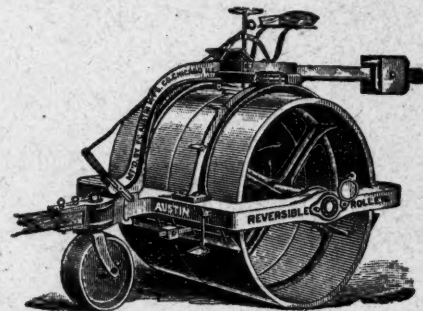
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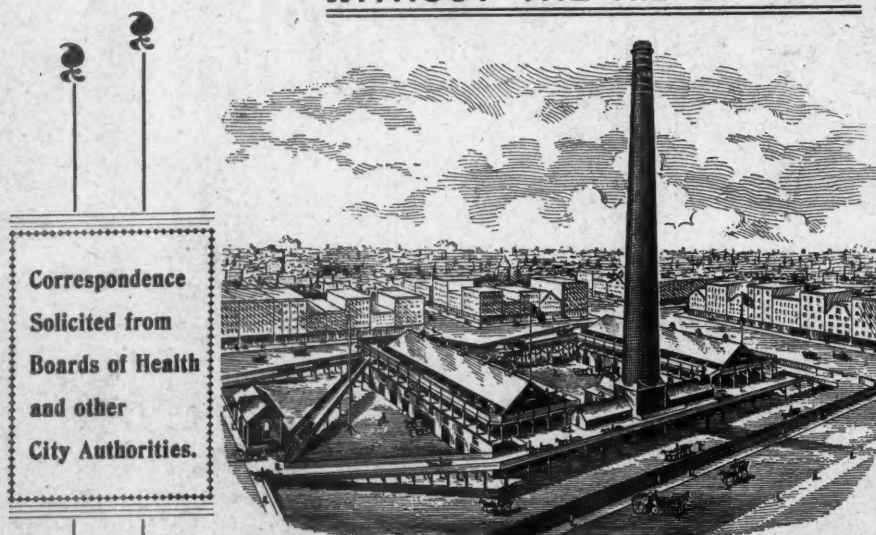
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Resolution Adopted by the California State Board of
Health in Reference to the Thackeray
Incinerator at San Francisco.

WHEREAS, a careful and exhaustive investigation into the mode of operating the Incinerator lately constructed by the Sanitary Reduction Works Company, at the intersection of Rhode Island and Alameda Streets, in the City and County of San Francisco, having convinced us that the refuse heretofore deposited at designated places in said City and County to the great detriment of the public health and in defiance of all the principles of sanitation, is now being disposed of in a clean and healthful manner and without perceptible odor; and

WHEREAS, knowing that reduction by fire, the method employed by the Sanitary Reduction Works, is the only thoroughly scientific way of disposing of the refuse and garbage of a city, and it having been demonstrated to us that the Incinerator constructed by the said Company, at the intersection of Rhode Island and Alameda Streets, in the City and County of San Francisco, is the most effective device yet invented for the reduction of refuse and garbage by fire, and that the said Incinerator is capable of burning all the refuse and garbage which will be produced in the said City and County for some years to come, it is

Resolved, by the State Board of Health, that the Incinerator constructed by the Sanitary Reduction Works as aforesaid, be, and is hereby approved and indorsed as the greatest sanitary importance to the City and County of San Francisco, and its population.

Resolved, that in our opinion the Incinerator aforesaid disposes of refuse and garbage in a thoroughly scientific manner and so as to create no odor, or so as not to be in any way detrimental to the public health.

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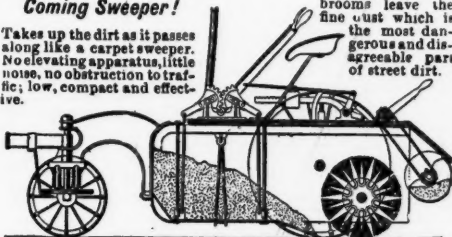
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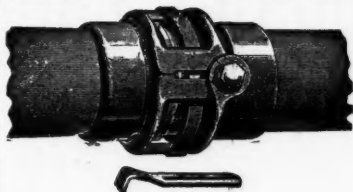
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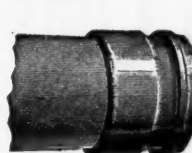
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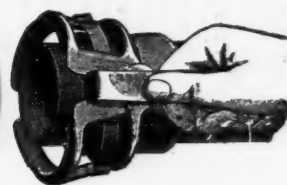
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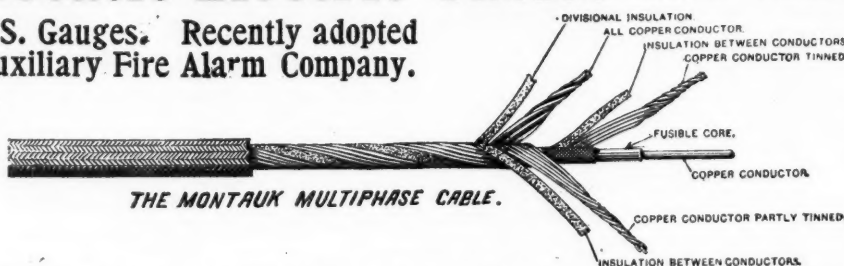
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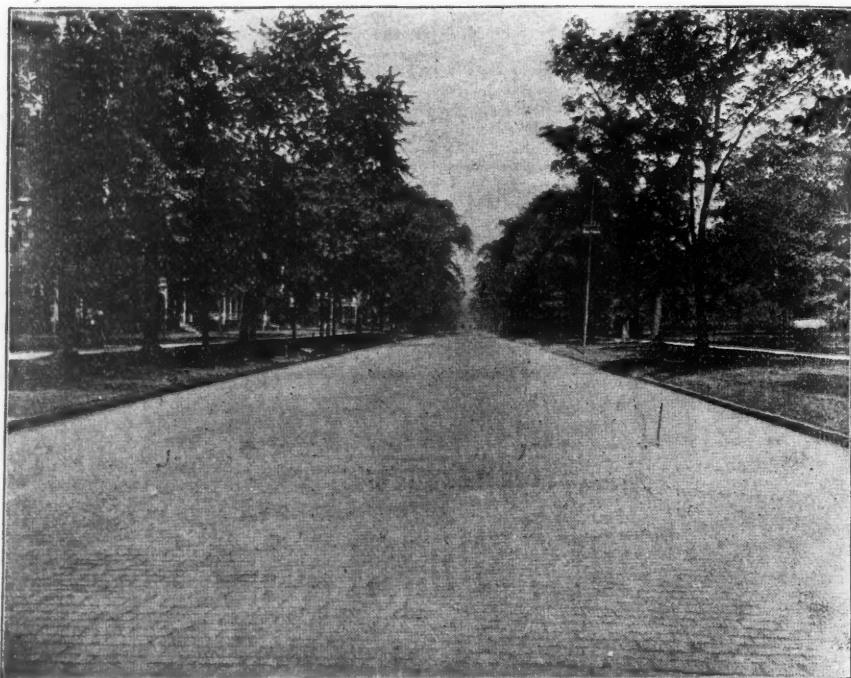
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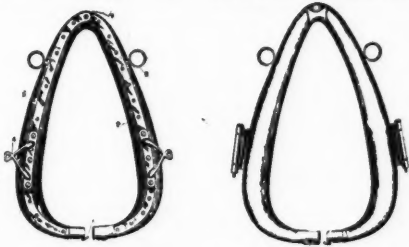
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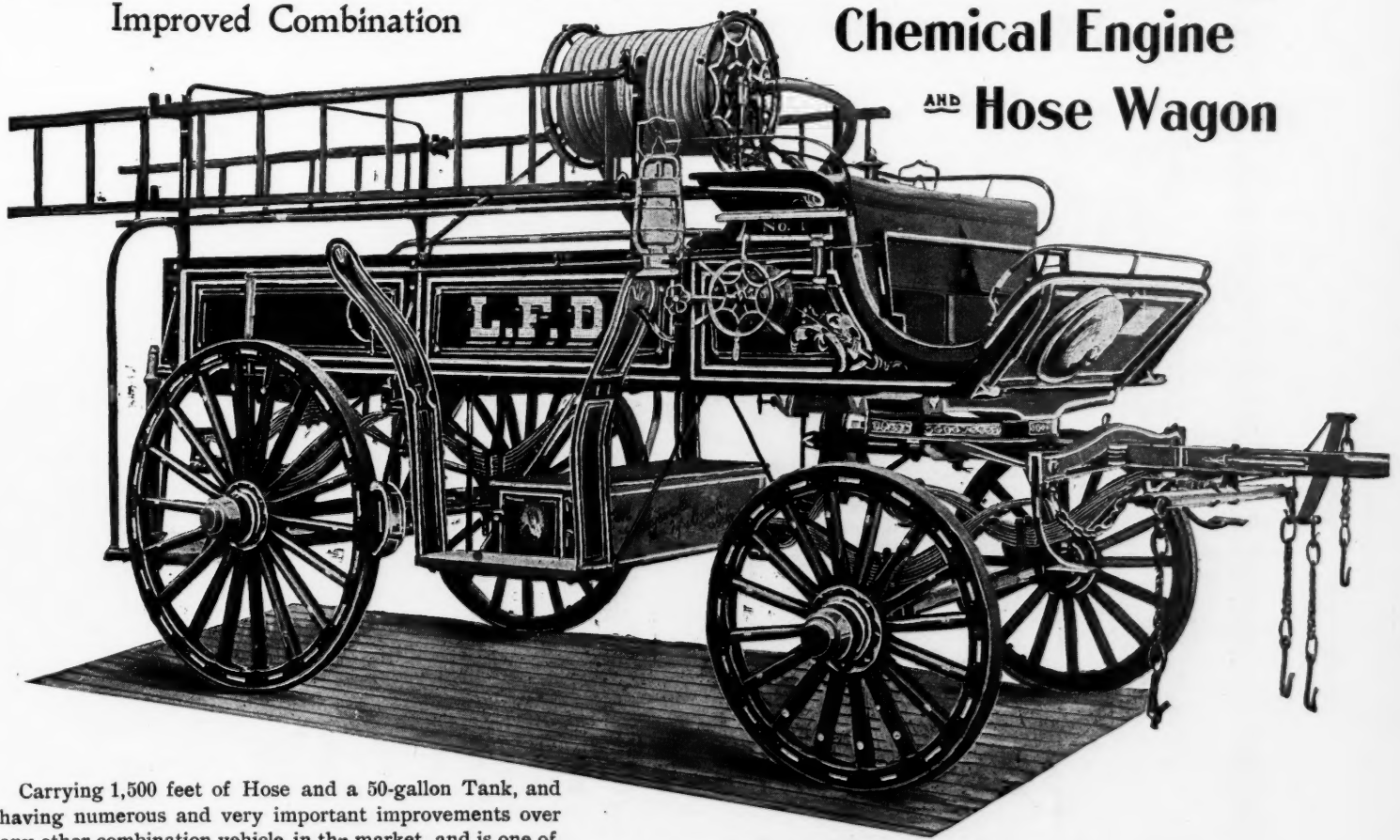
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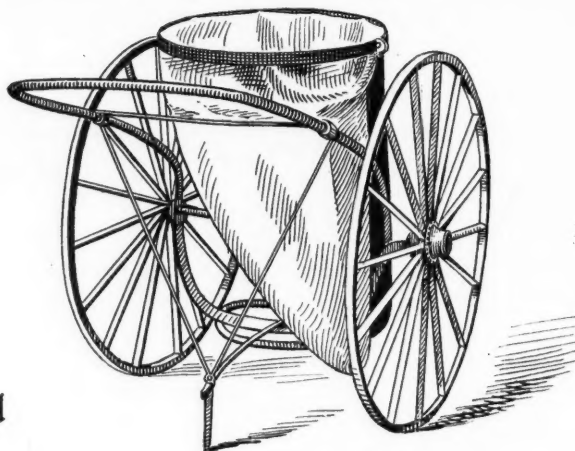


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Dixon Garbage Crematory Co., Toledo, O.
Thackeray Incinerating & Fertilizing Co., Singer Bldg., New York.

HORSE COLLARS AND HARNESS TRIPS.

John A. Welder, Rochester.
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MASTIC.

Assyrian Asphalt Co., Chicago.

METER TESTING APPARATUS.

Pittsburg Meter Co., East Pittsburg, Pa.

NOZZLES.

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New Jersey Car Spring and Rubber Co., Jersey City, N. J.

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Assyrian Asphalt Co., Chicago.

PIPE, SEWER AND CULVERT.

H. Stevens' Sons Co., Macon, Ga.

PIPE COATINGS, HOT.

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T. N. Motley Co., 43 John St., New York.

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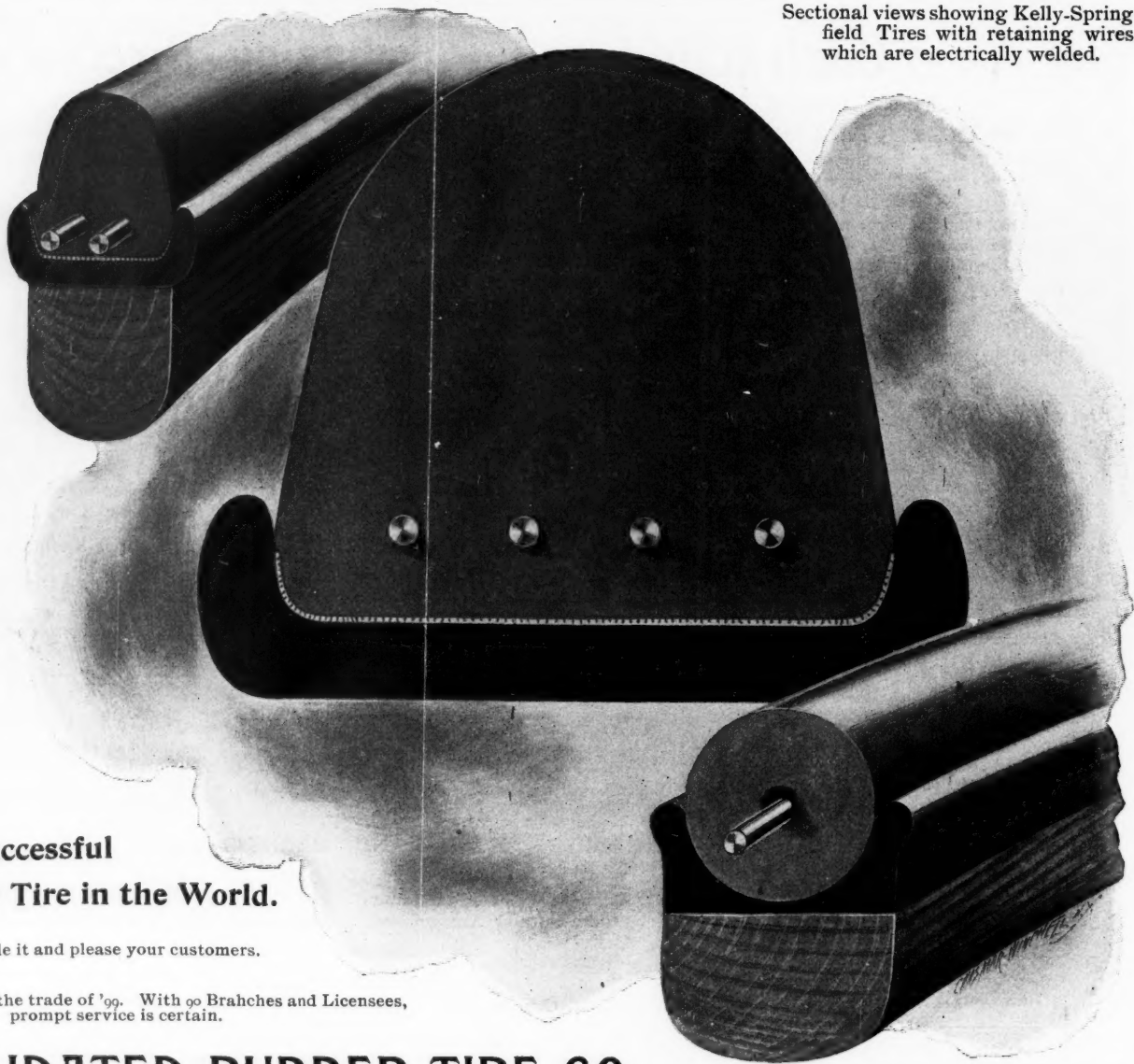
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October, 1899.

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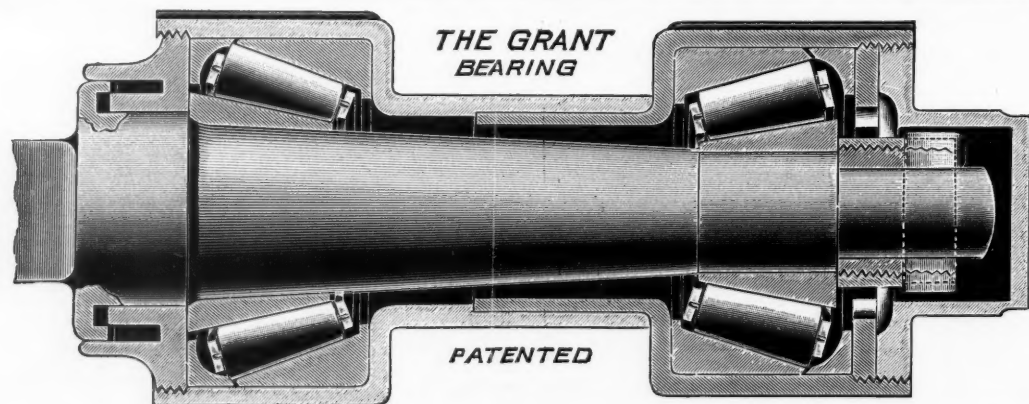


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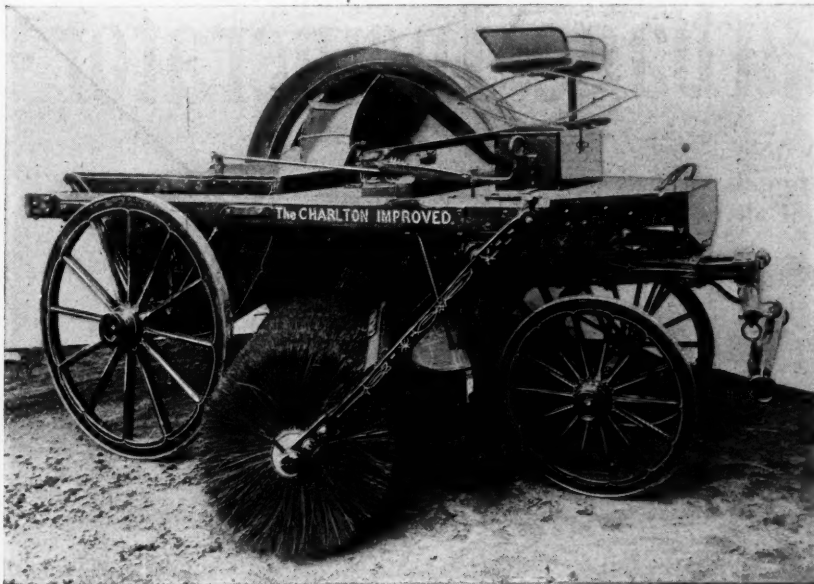
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Babcock Chemical Fire Engines.
Combination Chemical Engines and Hose Wagons.

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Fire Extinguisher Charges
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Babcock Aerial Hook and Ladder Trucks.
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Turret Nozzles or Deck Standpipes for Lumber Yards, Factories, Warehouses and Public Buildings.

Nozzles of All Kinds.
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"Eclipse" Tubular Lanterns.
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Gongs, Axes, Lamps, Sliding Poles.
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And a hundred other small supplies and specialties.

The Decarie Garbage Incinerator

Disposes, in a **SANITARY** method, of the whole waste of a city, including all vegetable and animal matter, ashes, house sweepings and refuse of all kinds.

The garbage itself furnishes the fuel, and creates steam power to the extent of from two to three horse-power per ton of garbage which can be utilized for operating electric light plant or any other municipal industry.

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Also Agent for the Decarie Automatic Gully or Catch Basin Cleaner and Decarie Fire Department Appliances, consisting of Controlling and Combination Nozzles, Hose Couplings, Hydrant Check-Valves, Etc.

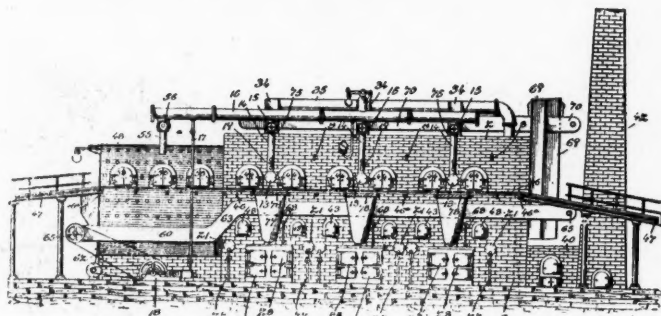


FIG. 1—SIDE VIEW EXTERNAL.

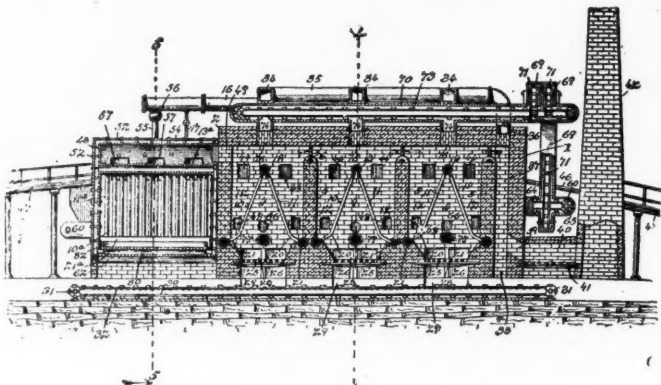


FIG. 2—LONGITUDINAL SECTIONAL VIEW OF ENTIRE CREMATORY.

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Manufacturers of

HARRIS SYSTEM OF

FIRE ESCAPES FIRE ALARMS AND FIRE EXTINGUISHERS

For schools, public office buildings, hotels and private residences.

"Built to
Save."

The Harris Automatic-Mechanical "Built-In" Exterior Escape

Is constructed of three Specially flexible steel wire cables, with steel rungs, copper plated (for tensile strength of cables, see foot of page). The Fire Escape is compactly rolled and concealed within a case with ornamental front corresponding with style of architecture, and is "built-in" underneath the cornice or in the gable.

To the case is connected a cord running perpendicularly to the basement, with fusible links exposed in each room. The links fuse or melt and separate at 160 degrees, thus automatically opening the door of the case containing Fire Escape, or the Fire Escape may be released by pulling the starting cord.

The door of the case opens on its hinges to a slanting or inclined position, permitting Fire Escape to freely unwind at an angle sufficient to avoid any projections, awnings, etc., on building, and momentarily checking descent of Escape when within seven feet of the ground (rendering impossible any accident to passers-by not previously warned of the fire); then the door drops flatly against the building, the Fire Escape assuming an upright position and reaching ground, where it is secured and made taut by a ratchet device attached to side of building or in pavement, and affording an absolutely safe means of egress or ingress.

If, as usually the case, firemen, policemen or citizens are present, the steel cable Fire Escape may be held in any position desired, and should fire break out beneath persons descending, the Escape may be pulled one side and rescue safely effected.

The Harris Push Button "Built-In" Interior Fire Escape

Is similarly constructed, and is enclosed in a metallic case "built-in" within the interior walls and underneath window sill. To the metallic front of case is screwed a panel corresponding with the woodwork or finish of room. The case is opened by operating an inconspicuous push-button on front of same. Instantly upon releasing door of the case the Fire Escape (which is very compactly wound on a reel) rolls out; simultaneously the front of case drops to a horizontal position, the Fire Escape is thrown out of the window under which it is securely fastened, and the lid or front of case becomes a step for use in reaching Fire Escape, which affords a perfect and indestructible means of safety.

The Harris Portable Interior Fire Escape

Is constructed the same as those above mentioned, and is enclosed in an oxidized and ornamented metallic case and solidly fastened to the lower inside window casement. It is instantly available. Very simple and durable. Entirely safe. It is a veritable illustration of the old saying, "Both useful and ornamental." When not in actual service it is ornamental; when required throw Portable Escape out of the window to which it is attached and it will automatically unwind and is ready for immediate use. If the ladies are averse to the metallic case, it is an easy matter to throw over it a fabric cover, festooned with ribbons and bows to match the style and character of the draperies and decorations of the room and window.

The Harris Combination Furniture Fire Escape

Is constructed as above described, and applied in combination with upholstered chairs, divans and couches of leading and ate de signs. The upholstery, completely concealing the Fire Escape, is secured by snap or glove-button fastenings, and can be readily released when emergency demands. Push the article of furniture to window and with sudden jerk release the Fire Escape and then throw it out of window, when a strong grappling hook immediately engages the window sill and affords a positively safe anchorage for the Fire Escape, which is at once ready for rescue work. The grappling hook is self-adjusting to the height of any window sill. If desired, furniture will be made to match that now in use or in almost any special design required, while our regular stock styles comprise furniture in modern and unique designs, and in styles and prices calculated to suit our patrons.

The Harris System of Fire Escapes will carry any reasonable weight. Several persons may use a single Escape at the same time with entire safety.

As a guarantee of the solidity and stability of the Harris System of Fire Escapes it may be mentioned that the tensile strength of each cable for Portable Fire Escapes, less than 50 feet long, is 700 pounds; total tensile strength of the three cables, 2,370 pounds. Tensile strength of cables for Automatic-Mechanical Escapes and for Portable Escapes, over 50 feet in length, 1,430 pounds each; total tensile strength of the three cables, 4,290 pounds.

The only simple, practicable and absolutely reliable Fire Escape. Never out of order. Instantly available. Will not mildew or rot. Is moth-proof. Rodents cannot destroy it. It will not break. It can't burn. A child can use it. It is the most durable, the safest, is "Built to Save"; hence the cheapest and best, for surely in fire escapes, fire alarms and fire extinguishers "the best is the cheapest."

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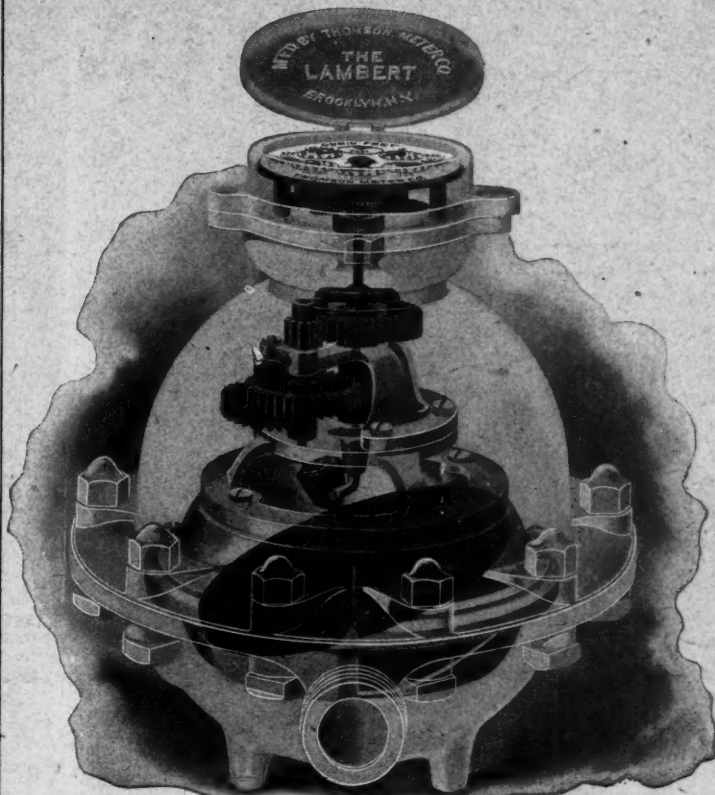
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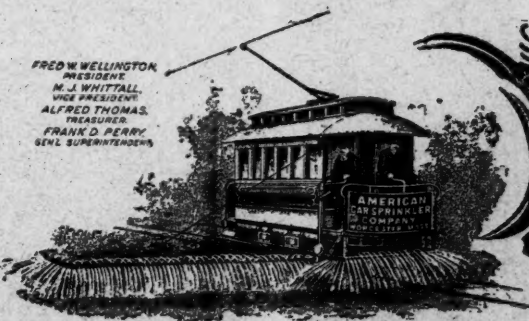
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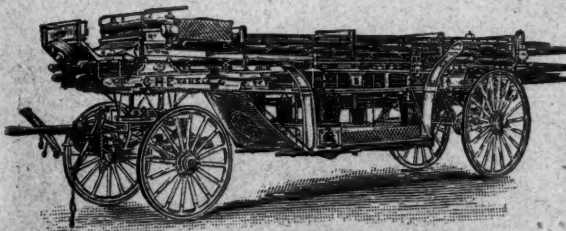
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THE SEAGRAVE CO., COLUMBUS, O.

October, 1899.

CITY GOVERNMENT.



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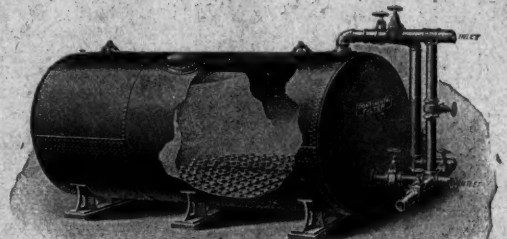
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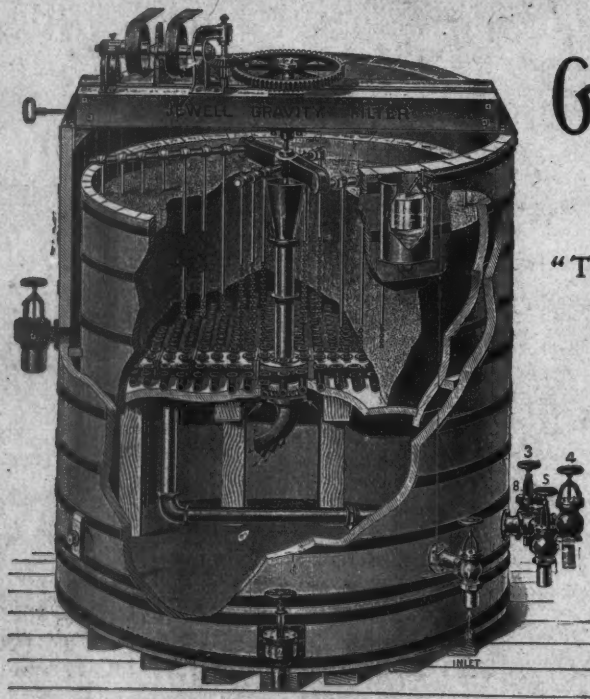
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